REVISION OF THE NEARCTIC SPECIES OF *PLATYCHEIRUS* (DIPTERA, SYRPHIDAE)

J.R. VOCKEROTH
Biosystematics Research Centre, Agriculture Canada, Research Branch, Central Experimental Farm, Ottawa, Ontario, Canada K1A 0C6

Abstract

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The 70 species of *Platycheirus* (including *Carposcalis*, *Pyrophaena*, and much of *Melanostoma* of North American authors) occurring in the Nearctic Region north of Mexico are revised. Twenty-three species are described as new and new names are proposed for two species. Eighteen new synonyms and 14 new combinations are proposed; one variety name is given specific status. Six palaearctic species are recorded from North America for the first time, and one nearctic species from Europe, for a total of 23 holarctic species.

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Résumé

Les soixante-dix espèces de *Platycheirus* (incluant *Carposcalis, Pyrophaena* et la plupart des *Melanostoma* des auteurs de l'Amérique du nord) se retrouvant dans la région néarctique au nord de Mexico sont revisées. Vingt-trois nouvelles espèces sont décrites et pour deux espèces, de nouveaux noms sont proposés. Dix-huit nouveaux synonymes et 14 nouvelles combinaisons sont proposés; un nom de variété reçoit un statut spécifique. Six espèces paléarctiques sont rapportées pour la première fois en Amérique du Nord de même qu'une espèce néarctique européenne, soit un total de 23 espèces holarctiques.

INTRODUCTION

The genus *Platycheirus* Lepeletier and Serville is presently referred to the tribe Melanostomatini (sometimes misspelled Melanostomini) of the subfamily Syrphinae. The tribe includes all species of Syrphinae with an unsegmented, essentially tubular aedeagus; the basal part of the aedeagus is strongly swollen or bears a strong posterior process and the apical part is tube like (Figs. 83, 84, 87–93). Species of the other tribes of Syrphinae usually have the aedeagus clearly 2-segmented or, if it is unsegmented, it is complex.

Until recently, before the value of the male terminalia in classification was fully realized, the tribe was restricted to those species in which the face and scutellum are entirely black. This was the basis of the definition of the tribe accepted by Fluke (1958) in his study of the male terminalia of the New World species and by Wirth *et al.* (1965) in their catalogue of the nearctic species. These nearctic species are still referred to the tribe, but a few additional species (e.g. *Baccha elongata* Fabricius) are included as well because of the nature of the aedeagus even though the face may be partly yellowish.

The tribe in North America north of Mexico may be defined as follows: Syrphidae with bare postpronotum and with tergite 5 of male visible in dorsal view, with face and scutellum entirely black and with abdomen parallel-sided or narrowly oval, or, if abdomen petiolate (slender basally and distinctly broadened apically) then anterior flat part of anepisternum without erect fine hairs and R_{4+5} without a distinct loop into cell r_{4+5}, and hind femora without distinct spines.

Five genera of the tribe occur in the Nearctic Region. One or more species of each of the genera *Platycheirus*, *Baccha* Fabricius, and *Melanostoma* Schiner have been reported to be aphidophagous; a few of those of *Platycheirus* are reported to feed at least partly on decaying plant material as well. Larvae of the European species *Xanthandrus comtus* (Harris) have been reported to feed on larvae of several species of Lepidoptera but no host is known for the one nearctic species. No hosts are known for species of *Leucopodella* Hull.

The generic limits within the tribe Melanostomatini have been very confused. Traditionally most species were placed in *Platycheirus* (with broadened male fore tarsus and usually fore tibia) or in *Melanostoma* (with slender male tarsi and tibiae), with a few species having unusual colour patterns referred to *Pyrophaena*. Fluke (1958) attempted to clarify the situation with a study of the male terminalia but was unfortunately strongly influenced by male leg characters in his generic arrangement, and left many species of *Platycheirus* with unmodified male legs in *Melanostoma*.

Of great importance was the discovery by Andersson (1970) of the marked difference in the structure of the metasternum in these two genera (Figs. 63, 64). This character shows clearly that *Melanostoma* is almost entirely an Old World genus, with one very variable New World species having many synonyms (or perhaps a complex of species) extending south to Mexico. The other nearctic species referred to *Melanostoma* by Wirth *et al.* (1965) (except for *Cheilosia parva* Williston, 1882, and *Melanogaster? rufipes* Bigot, 1883, which are probably species of *Chrysogaster* or *Orthonevra*), plus all those referred to *Carposcalis* Enderlein, *Platycheirus*, and *Pyrophaena* Schiner, are here placed in *Platycheirus*. The male legs show so many diverse modifications that clear definition of "genera" on this basis is impossible; the male terminalia almost without exception have a very similar surstylus and paramere which differ distinctly from these structures in *Melanostoma*; the metasternum is well developed in all species. The females of the generic segregates recognized by previous authors can in many cases not be placed in these restricted genera with certainty.

KEY TO NEARCTIC GENERA OF MELANOSTOMATINI

1. Abdomen distinctly petiolate 2
— Abdomen parallel-sided or narrowly oval 3

2. Face straight, without tubercle. Metepisternum with row of fine subappressed hairs (southern Arizona southward) ..... *Leucopodella* Hull
— Face with low but distinct tubercle just above lower margin. Metepisternum bare (widespread) ..... *Baccha* Fabricius

3. Metepisternum with several fine subappressed hairs; upper and lower katepisternal hair patches broadly separated posteriorly, joined anteriorly. Hind coxa with tuft of a few hairs at posteromedial apical angle (southern Texas southward) ..... *Xanthandrus* Verrall
— Metepisternum bare; katepisternal hair patches broadly separated throughout. Hind coxa without hairs at posteromedial apical angle (widespread) 4

4. Metasternum normal, with median part broadly joined to lateral arms (Fig. 64). Face (Figs. 1–8) variable, almost straight with weak tubercle or moderately or strongly produced forward below and sometimes with large or abrupt tubercle, sometimes with pruinosity forming a punctate (Fig. 1) or rippled (Figs. 7, 8) pattern. Legs of male sometimes slender and unornamented, sometimes with fore tibia and/or tarsus broadened, or sometimes with femora or tibiae with bristles, hair tufts, or other distinctive vestiture ..... *Platycheirus* Lepeletier and Serville
— Metasternum greatly reduced, with deep posterior incision on each side so that median part is narrowly joined to lateral arms (Fig. 63). Face not produced below, with small tubercle; facial pruinosity never punctate nor rippled (Fig. 9). Legs of male slender, without bristles, hair tufts, or other distinctive vestiture ..... *Melanostoma* Schiner

PLATYCHEIRUS LEPELETIER AND SERVILLE

Cheilosia Panzer, 1809, p. 14. Type species, *Syrphus rosarum* Fabricius, 1787 (monotypy). To prevent confusion the I.C.Z.N. should be asked to suppress *Cheilosia* Panzer to preserve existing usage of *Cheilosia* Meigen, 1822, and to place *Platycheirus* on the Official List of Generic Names.

Platycheirus Lepeletier and Serville, 1828, p. 513. Type species, *Syrphus scutatus* Meigen, 1822 (subsequent designation, Westwood, 1840, p. 137).

Platychirus (emendation): Agassiz, 1846, p. 295.

Pyrophaena Schiner, 1860, p. 213. Type species, *Syrphus rosarum* Fabricius, 1787 (original designation).

Pachysphyria Enderlein, 1938, p. 196. Type species, *Scaeva ambigua* Fallén, 1817 (original designation).

Carposcalis Enderlein, 1938, p. 199. Type species, *Syrphus stegnus* Say, 1829 (original designation).

Slender to rather robust species with completely black head and thorax; abdomen usually black with distinct paired yellow to orange or silver- to grey-pruinose or bluish submetallic spots but sometimes almost completely black or mostly yellow or orange. Length 4.7–10.5 mm.

Eye bare. Face black, varying from slightly receding below with obscure tubercle to rather strongly produced below with prominent tubercle, usually uniformly pruinose or with only tubercle shining, sometimes with pruinosity obliquely rippled or with oblique rows of distinct punctures (Figs. 1–8). Scutum black, usually shining or subshining, sometimes with notopleuron strongly pruinose, rarely entirely moderately pruinose. Scutellum and pleura black, at most weakly pruinose. Ventral scutellar fringe complete. Upper and lower katepisternal hair patches broadly separated, the former sometimes reduced or absent. Anterior anepisternum, meron, metapleuron, and metasternum bare. Metasternum well developed, the 2 halves not deeply excavated posteriorly (Fig. 64). Wing membrane usually entirely trichose, sometimes with bare areas near base or bare on most of basal half. Hind coxa without posteromedial apical hairs. Legs (Figs. 10–62): Fore trochanter often with short stiff setulae below; fore femur often with distinctive hair tufts, modified hairs, or distinct bristles on posterior or ventral surfaces; fore tibia usually flattened and broadened toward apex or with a row of posterior bristles; fore leg usually with first 1, 2, or 3 tarsomeres flattened and broadened. Mid coxa with slender ventral process in *scutatus* (Meigen); mid femur usually with distinctive hairs or bristles, sometimes with anterior excavation just beyond mid length; mid tibia sometimes slightly flattened or broadened, often with distinctive hairs or bristles; mid tarsus only rarely modified. Hind leg usually simple, sometimes with distinctive hairs or bristles; 1st tarsomere of hind leg often swollen. Abdomen nearly parallel-sided in males, narrowly oval in females, unmargined, with varied markings (Figs. 65–82). Sternites yellow, orange-brown or black, the colour correlated with predominant colour of tergites.

Male terminalia (Figs. 83–96). Surstylus usually slender, flattened, tapering slightly to blunt or broadly rounded apex, with large thumb-like basomedian lobe; rarely elongate oval, or slightly narrowed near mid length, more rarely with basal lobe very small or absent. Epandrium (sternite 9) truncate apically. Paramere (superior lobe) usually with slender base and slender tapering hook-like process, rarely with stout base and stout tooth-like process or with 2 tooth-like processes. Aedeagus unsegmented, usually strongly swollen basally, then abruptly constricted with a short nearly tubular apical section.

Distribution. The genus is predominantly holarctic and is markedly boreal; of the 70 species here recognized from north of Mexico 45 occur in Alaska, Yukon Territory, or Northwest Territories and only five are not known to occur in Canada or Alaska. Twenty-three of the 70 species, and almost certainly rather more, occur in the Palaearctic Region. A number of additional species occur in temperate parts of Mexico, Central America, and South America (especially in Chile), and in the Palaearctic Region. In the Oriental Region a few species occur at high altitudes in Taiwan, the Philippines, and Nepal. The genus is apparently absent from Indonesia, New Guinea, and Australia, but is well developed in New Zealand. No species are known from the Afrotropical Region.

Species Groups in *Platycheirus*. The nearctic species of *Platycheirus* may be divided into five rather well-defined groups. Two of the groups may be divided into subgroups. As the groups are based in large part on characters of the male legs, females can often not be definitely referred to the groups. The leg characters given in the diagnoses below are of males only. It is probable that most of the groups are monophyletic, but paucity of characters makes a demonstration of this difficult and perhaps impossible. Each group or subgroup is named for the first-described included species even though this species may be palaearctic. The regional distribution of each group and subgroup is indicated (the Oriental and New Zealand species are not considered).

1. *granditarsis* group (holarctic). Male femora and tibiae unmodified, the former sometimes with short stiff setae but otherwise without distinctive vestiture; tarsi slender or (*granditarsis* only) fore and mid tarsi broadened but thick and black. Face vertical, very thinly but uniformly pruinose. Abdomen with varied orange to reddish spots which differ in shape on different tergites. Species: *granditarsis* (Forster), *rosarum* (Fabricius), *rufigaster* sp.nov. The first two have been referred by many authors to *Pyrophaena* Schiner.

2. *albimanus* group (holarctic). Fore leg, and particularly fore tarsus, strongly modified: femur often with outstanding hair tufts, flattened hairs, or long bristles; tibia usually broadened and depressed toward apex and usually extensively pale; tarsus distinctly broadened with 1st tarsomere usually broader and longer than others, 1st and often several succeeding tarsomeres depressed and extensively pale. Mid leg usually slightly modified: femur often with strong short or long setae or hair tufts or with anterior excavation; tibia sometimes slightly depressed, irregular in outline or swollen apically, and often with tufts or patches of short or long outstanding hairs or stiff setae; first 1 or 2 tarsomeres sometimes depressed or compressed. Hind tibia sometimes with a few long hairs or with dense upwardly directed coarse setae anteriorly. Face slightly receding, vertical or distinctly protruding below, thinly to densely uniformly pruinose except on tubercle, with vertical keel between antennal bases in *peltatus* subgroup. Abdomen with yellow-orange to silvery or submetallic paired or medially confluent spots of approximately the same shape on tergites 2–4. The species have been referred by all recent authors to *Platycheirus*.

2*a*. *manicatus* subgroup (holarctic). Fore femur without distinctive vestiture; fore tibia at most very slightly broadened toward apex, much narrower than 1st tarsomere; fore tarsus with first 2 tarsomeres broadened. Mid femur simple; mid tibia usually with patches of short dense hairs or with a few stiff long hairs, mid tarsus sometimes with first 1 or 2 tarsomeres slightly to strongly compressed. Hind tibia sometimes with long hairs. Face slightly to strongly protruding below. Abdomen with silvery or yellowish subquadrate or subrectangular spots which may be broadly confluent medially. Species: *discimanus* Loew, *flabellus* Hull, *groenlandicus* Curran, *manicatus* (Meigen), *oreadis* sp.nov., *subordinatus* Becker, *thylax* Hull.

2*b*. *peltatus* subgroup (holarctic). Fore femur posteriorly on its entire length with nearly uniform flattened dense black hairs (except in *jaerensis*); tibia very slightly broadened from base to near apex, then abruptly broadened; 1st tarsomere long and broad, with weak to strong dorsal keel on at least apical half (except in *latitarsis*), 2nd tarsomere much shorter and (except in *latitarsis*) distinctly narrower than 1st. Mid femur with shallow but distinct anterior excavation on apical half, the excavation bordered below by short curved black setae; tibia with anteroventral tuft of erect to subappressed dark or pale hairs on basal half followed by dense posteroventral tuft of short black hairs, slightly to strongly swollen below at apex. Hind tibia anteriorly with dense upwardly directed coarse black setae. Face rather strongly protruding below with low but distinct vertical keel between antennal bases. Abdomen with large subquadrate or subrectangular paired orange spots on tergites 2–4. Species: *amplus* Curran, *holarcticus* nom.nov., *inversus* Ide, *jaerensis* Nielsen, *latitarsis* sp.nov., *nearcticus* sp.nov., *nielseni* sp.nov., *octavus* sp.nov., *peltatoides* Curran, *peltatus* (Meigen) (palaearctic).

2c. *albimanus* subgroup (holarctic). Fore femur posteriorly near base with compact tuft of several long wavy white hairs followed by 2 compact or rather diffuse tufts of many long black hairs which may be slightly flattened throughout or at apex and which (except in *scutatus*) are followed by a row of 3–5 long slender black bristles; tibia moderately broadened from base to apex, usually more abruptly broadened posteriorly on about apical third; first 4 tarsomeres broad, each slightly narrower than the preceding. Mid coxa with slender ventral process in *scutatus* only; femur with a regular or irregular row of weak to strong anteroventral setae; tibia with dense wavy posterior hairs in *scutatus* only. Face very slightly protruding below. Abdomen with subtriangular to subrectangular paired silvery spots on tergites 2–4, the spots with distinct orange background only in *scutatus*. Species: *albimanus* (Fabricius), *ciliatus* Bigot, *nigrofemoratus* Kanervo, *scutatus* (Meigen), *urakawensis* (Matsumura).

2d. *nodosus* subgroup (nearctic). Fore femur posteriorly near base with a tuft of a few long pale hairs with slightly to strongly broadened black apices, this tuft preceded by a single long pale hair or by a tuft of several hairs with slightly broadened apices; tibia strongly broadened from base to about ⅘ its length, then slightly narrowed to apex; 1st tarsomere slightly to strongly broadened, other tarsomeres successively slightly narrower. Mid femur sometimes with a few weak anteroventral setulae; tibia nearly bare or with erect to appressed moderately long anteroventral hairs on basal half. Face nearly vertical. Abdomen with rounded or subrectangular and often elongate paired yellow-orange spots on tergites 2–4. Species: *nodosus* Curran, *pilatus* sp.nov., *thompsoni* sp.nov.

2e. *clypeatus* subgroup (holarctic). Fore femur posteriorly near base with tuft of 2 or 3 closely appressed long white hairs with wavy apices followed by a row of a few widely spaced long slender or moderately stout bristles or by only fine hairs; tibia moderately or strongly broadened from base to or nearly to apex, sometimes more abruptly broadened at about mid length; 1st tarsomere strongly broadened, other tarsomeres varied; in *normae* only fore tibia with strong dorsal keel and 1st tarsomere of fore leg scarcely widened and constricted at mid length; mid femur usually with outstanding long or short setae of varied form and arrangement; tibia usually with tufts or patches of dense fine hairs, in *quadratus* only distinctly broadened and depressed throughout. Face usually nearly vertical, produced slightly but distinctly forward below only in *hispidipes*. Abdomen with paired yellow to silvery or submetallic spots on tergites 2–4, the yellow spots sometimes confluent medially. Species: *aeratus* Coquillett, *angustatus* (Zetterstedt), *clypeatus* (Meigen), *hispidipes* sp.nov., *hyperboreus* (Staeger), *immarginatus* (Zetterstedt), *normae* Fluke, *perpallidus* Verrall, *podagratus* (Zetterstedt), *quadratus* (Say), *setipes* sp.nov., *tenebrosus* Coquillett.

2f. *scambus* subgroup (holarctic). Fore femur posteriorly near base without a tuft of long hairs. Characters otherwise much as in *clypeatus* subgroup; mid tibia not distinctly broadened nor depressed. Face sometimes rather strongly protruding below, with weak vertical keel between antennal bases only in *parmatus* (this species has the structure of the head and of the fore tibia and tarsus very similar to that of the species of the *peltatus* subgroup; although it has only slender posterior hairs on the fore femur and lacks an anterior excavation on the mid femur it should perhaps be referred to that group). Species: *modestus* Ide, *orarius* sp.nov., *parmatus* Rondani, *scamboides* Curran, *scambus* (Staeger), *varipes* Curran.

3. *ambiguus* group (holarctic). Legs slender. Fore femur posteriorly on at least apical half usually with a row of stiff straight black setae, the last seta longer and with apex strongly curved, in *kelloggi* only with dense fine pale hairs and 2 or 3 weak curved black setae near apex, ventrally near base with a row of 3–6 stiff white or black setae about as long as femoral diameter; tibia posteriorly on apical half usually with a row of fine long straight hairs, in *kelloggi* only with dense short fine erect hairs on entire length. Mid femur anteroventrally near base with a group of long stiff setae; tibia posteriorly on apical half usually with a few long stiff hairs. Face nearly vertical, uniformly pruinose except on

tubercle, without keel between antennal bases. Abdomen usually with silvery or submetallic paired spots on tergites 2–4, the spots sometimes with dull orange background, in *kelloggi* only the spots large and clear orange to reddish. Species: *ambiguus* (Fallén) (palaearctic), *coerulescens* (Williston), *kelloggi* (Snow), *lundbecki* (Collin). The species have been referred by most recent American authors to *Melanostoma* Schiner or to *Carposcalis* Enderlein.

4. *stegnus* group (nearctic, neotropical). Legs slender. Fore femur posteriorly with fine hairs, ventrally at base sometimes with a few stiff setae. Fore and mid tibiae posteriorly on at least apical half with a single row of short and rather weak to long and strong black bristles. Face slightly or moderately produced below, with pruinosity bearing distinct subshining punctures or oblique ripples or with pruinosity uniform except on tubercle; usually without keel between antennal bases. Abdomen with paired subrectangular to subtriangular silvery to submetallic spots on tergites 2–4, the spots sometimes with obscure or distinct dull orange background. The species have been referred to *Carposcalis* by recent American authors.

4*a*. *stegnus* subgroup (nearctic, neotropical). Face with pruinosity punctured or rippled, without keel. Species: *confusus* (Curran), *hesperius* nom.nov., *obscurus* (Say), *sabulicola* sp.nov., *squamulae* (Curran), *spinipes* sp.nov., *stegnoides* sp.nov., *stegnus* (Say).

4*b*. *carinatus* subgroup (nearctic, neotropical). Face with pruinosity uniform, without punctures or ripples, with a weak to strong keel between antennal bases (except in *protrusus*). First tarsomere of fore leg with strong curved posterior setae in *carinatus* and *yukonensis* only. Species: *carinatus* (Curran), *protrusus* sp.nov., *setitarsis* sp.nov., *yukonensis* sp.nov.

5. *concinnus* group (nearctic). Femora sometimes rather stout, legs otherwise slender, usually without distinctive vestiture but with short dense fine pale posterior and posteroventral hairs on fore tibia and 1st tarsomere of fore leg in *woodi*. Face slightly to moderately produced below, uniformly moderately pruinose except on tubercle, sometimes with distinct vertical keel or groove between bases of antennae. Abdomen with subtriangular paired or confluent submetallic (usually blue or bronze) spots on tergites 3 and 4 and sometimes on tergite 2, the spots only rarely with reddish background. Species: *concinnus* (Snow), *coracinus* sp.nov., *latus* (Curran), *luteipennis* (Curran), *pullatus* sp.nov., *rufimaculatus* sp.nov., *russatus* sp.nov., *striatus* sp.nov., *willistoni* (Goot), *woodi* sp.nov. The species have been referred by almost all authors to *Melanostoma*.

Biology. Larvae of 10 nearctic species have been reported to be aphid predators either in Europe or in North America. Curran (quoted by Davidson 1922) found that larvae of *P. obscurus* (Say) ate decomposing chickweed as well as aphids and were more successful on the former (this remark is ambiguous but I think it unlikely larvae developed successfully on chickweed alone). Goeldlin (1974) found that larvae of *P. immarginatus* (Zetterstedt) lived for 10 days by feeding on bean cotyledons, but grew much more slowly than those fed on aphids and failed to produce adults even though aphids were added to their diet. He concluded that the larvae of the genus are aphidophagous but are facultatively phytophagous.

Both authors reported that larvae of various species did most of their feeding at night and usually hid in dark places during the day. Heiss (1938) also observed this, and mentioned that larvae preferred moist situations. Goeldlin found that larvae of several species lived only on low-growing plants; only those of *P. ambiguus* (Fallén), a close relative of *P. coerulescens* (Williston), were taken on aphid colonies at higher levels in orchards. Rotheray and Gilbert (1989) suggested that many species may be predators in leaf litter.

Goeldlin reported that several species are polyvoltine or oligovoltine but that two, of which one (*P. parmatus* Rondani [as *P. ovalis* Becker]) occurs in North America, are

univoltine with an obligatory larval diapause of 8–10 months. Davidson (1922) reported that two species in California developed without diapause.

Goeldlin observed that females of seven species deposited their eggs in rather regular rows in clusters of 2–10. Davidson (1922) showed a photograph of eggs of *P. stegnus* (Say) deposited in this way, and Metcalf (1917) illustrated the arrangement of eggs of *P. perpallidus* (Verrall). Chandler (1968) gave a key to eggs of six British species (five of which are holarctic) and illustrated some striking differences in chorionic sculpture.

Dixon (1960) gave a key to larvae of four British species (all holarctic).

Goot and Grabandt (1970), using specimens from the Netherlands, and Leereveld (1982), using considerably more specimens from several European countries and Canada, analysed the pollen in the gut of a considerable number of specimens of *Platycheirus* species. The results agreed in large part — it was determined that specimens of *P. angustatus* (Zetterstedt), *P. clypeatus* (Meigen), *P. fulviventris* Macquart, *P. immarginatus* (Zetterstedt), and *P. scambus* (Staeger), and some specimens of *P. granditarsus* (Forster), fed entirely or largely on pollen of Gramineae, Cyperaceae, and *Plantago lanceolata* (or species of the genus with similar pollen). These plants are generally considered to be wind pollinated (anemophilous) and unattractive to insects. Specimens of the other four species fed on pollen of a variety of other, mostly showy, flowers of many families. Many of the specimens of both groups used in the first study were taken in the same small area at the same time, so availability of plants was almost certainly not a factor. Stelleman and Meeuse (1976) studied *P. clypeatus*, *P. fulviventris*, and *P. scambus*, as well as *Melanostoma mellinum* (Linnaeus), in the field and found that some or all of the four species were effective pollinators of *Plantago lanceolata*.

Many species, especially those with broadened male fore tarsi, are most abundant in moist areas with low vegetation — marshes, lake shores, etc. Other species, e.g. *obscurus* (Say), are common in mesophytic woodland. Several high boreal or arctic species, e.g. *carinatus* (Curran), occur on barren hilltops.

Discussion. Males of most species can be readily distinguished on the basis of characters other than those of the terminalia. The terminalia (Figs. 83–96) usually show only insignificant differences in closely related species, but in some groups, especially those with simple legs, there are rather striking differences. These are mentioned below only when other characters do not allow ready identification. Females of most species cannot be definitely identified at the present time. Those that are distinct are included in the key below. Some others have been provisionally identified by association with males or on the basis of geographic distribution but have not been included in the key and usually not in the descriptions. As there have been many misidentifications of species in this genus very few published distribution records have been cited. Those taken from the literature are marked with an asterisk. Morphological terminology follows McAlpine (1981). Only the earliest reference for each name, and for each new generic combination, is given here.

Types in North American collections have been examined, whereas most of those in European collections have not. Most or all of the latter have been examined by other workers (although this is rarely indicated in the literature) and it is unlikely that study of the types will necessitate name changes. It did not seem warranted to request the loan of old types which are often fragile or on poor pins.

In this work, seasonal distribution is indicated by months during which adults were collected, usually for British Columbia and for Ontario and Quebec together (B.C., IV–VIII, X; Ont., Que., VI indicates specimens were taken in British Columbia in April, May, June, July, August, and October, and in Ontario and Quebec in June).

The genus *Platycheirus* as defined here includes the genera *Platycheirus*, *Carposcalis* Enderlein, *Pyrophaena* Schiner, and part of the genus *Melanostoma* Schiner of Wirth *et*

al. (1965). Several small or monotypic palaearctic genera, and the neotropical genus *Tuberculanostoma* Fluke, should perhaps also be included in *Platycheirus*.

As 23 species of *Platycheirus* are considered to be holarctic a number of recent important papers treating the palaearctic fauna should be mentioned. Ôhara (1980) published a profusely illustrated revision of the species of Japan. Goot (1981) gave keys to the species of northwest Europe and European Russia. Dušek and Láska (1982) revised the 13 European species of the *manicatus* group. Stubbs and Falk (1983) gave a key to the species of Great Britain; the work is noteworthy for its excellent colour illustrations (paintings), very often of both sexes. Useful information on habitats of the species is included. Violovitsh (1983) provided keys to males of 29 species (actually 33 species, if those of *Pyrophaena*, and *Melanostoma ambiguum* Fallén, are included) and females of 23 species known to occur in Siberia. Torp (1984) gave keys to the species of Denmark; he also gave some general habitat data, and a very interesting summary of the apparent changes in abundance of the various species since the 19th century.

KEY TO NEARCTIC SPECIES OF *PLATYCHEIRUS*

1. Male (eyes meeting on frons) 2
— Female (eyes widely separated on frons) 72

2. Fore tibia slightly to distinctly broadened toward apex and/or 1st tarsomere of fore leg distinctly broadened (Figs. 10*a*, 12*a*–20*a*, 28*a*–46*a*, etc.) 3
— Fore tibia and fore tarsus slender throughout (Figs. 54*a*, 55*a*, 60*a*, 62*b*) 45

3. Fore tibia at most slightly broadened near apex and distinctly narrower than 1st tarsomere of fore leg (Figs. 10*a*, 12*a*–18*a*) 4
— Fore tibia usually broadened on apical half or more and at least as wide as 1st tarsomere (Figs. 22*a*, 28*a*–46*a*, 48*a*–51*a*, 53*a*), sometimes strongly broadened only near apex and slightly narrower than the very large 1st tarsomere (Figs. 19*a*, 20*b*, 23*b*) 11

4. Fore tarsus black, with 1st tarsomere bearing a long triangular posterior process (Fig. 10*a*). Mid tarsus with first 3 tarsomeres much wider than apex of mid tibia (Fig. 10*b*). Posterior half of tergite 2, tergite 3, and anterior half of tergite 4 mostly or entirely orange (Fig. 65) (widespread) ..... *granditarsis* (Forster)
— Fore tarsus with 1st tarsomere whitish, nearly symmetrical in outline (Figs. 12*a*–18*a*). Mid tarsus slender. Tergites 2–4 black with silvery or yellowish sublateral spots which may be broadly confluent medially (Fig. 67) 5

5. Mid tibia with basal third of posterior to posteroventral surface with dense fine wavy hairs which are at least twice as long as tibial diameter and as long or almost as long as hairs on apical half of posterior surface, and with basal third of anteroventral surface usually with dense fine black hairs which are at least 3 times as long as tibial diameter (Figs. 12*j*, 14*j*, 16*k*, 17*k*, 18*j*) 6
— Mid tibia with basal third of posterior surface with short nearly straight hairs which are subequal in length to tibial diameter and less than ½ as long as the long fine or bristle-like hairs on apical half of posterior surface. Mid tibia with only very short straight inconspicuous hairs on anteroventral surface (Figs. 13*k*, 15*k*) 10

6. Basal third of hind tibia with dense wavy black anterodorsal hairs which are up to 3 times as long as tibial diameter. First tarsomere of fore leg about 3 times as wide as apex of fore tibia; apex of tarsomere very oblique (Fig. 16*a*) (Colorado) ..... *oreadis* **sp.nov.**
— Hind tibia with only short hairs or rarely with a few longer anterodorsal hairs at or beyond mid-length. First tarsomere of fore tarsus at most 2.2 times as wide as apex of fore tibia; apex of tarsomere slightly oblique or transverse (Figs. 12*a*, 14*a*, 17*a*, 18*a*) 7

7. First tarsomere of foreleg at least twice as long as wide (Fig. 17*a*) (northwestern) ..... *subordinatus* Becker
— First tarsomere of fore leg at most 1.6 times as long as wide (Figs. 12*a*, 14*a*, 18*a*) .. 8

8. Mid tibia with anteroventral hairs short, at most slightly longer than tibial diameter (Fig. 18*j*) (widespread) ..... *thylax* Hull

— Mid tibia with tuft of long wavy hairs on about basal third of anteroventral surface, the hairs at least 3 times as long as tibial diameter and much longer than hairs on rest of anteroventral surface (Figs. 12*j*, 14*j*) 9

9. Mid leg with first 2 tarsomeres yellow, the 1st strongly compressed and the 2nd slightly compressed; last 3 tarsomeres black (Fig. 12*j*) (widespread) .....*discimanus* Loew

— Mid leg entirely black, the tarsomeres not compressed (Fig. 14*j*) (boreal and arctic) .....*groenlandicus* Curran

10. Ventral surface of fore trochanter with many stiff black setulae. Ventral surface of fore femur with only long fine hairs. Apical half of posterior surface of fore and mid tibiae with many fine irregularly arranged black hairs of various lengths (Fig. 15*a*, *k*). Apical fifth of mid femur with short stiff black anteroventral hairs. First tarsomere of fore leg at least 2.33 times as wide as apex of fore tibia (Fig. 15*a*) (Alaska) .. *manicatus* (Meigen)

— Ventral surface of fore trochanter with a few fine pale setae. Basal half of ventral surface of fore femur with a row of 3 or 4 stiff black or yellow setae about ⅔ as long as femoral diameter. Apical half of posterior surface of fore and mid tibiae with a single row of straight black bristle-like hairs which are up to 2.5 times tibial diameter in length (Fig. 13*a*, *k*). Apical fifth of mid femur with long fine tangled black anteroventral hairs. First tarsomere of fore leg from 1.33 to 2 times as wide as apex of fore tibia (Fig. 13*a*) (boreal) ....*flabellus* Hull

11(3). Posterior surface of fore femur densely covered with rather strong, nearly uniform, slightly flattened black hairs, without outstanding hair tufts near base nor with outstanding longer hairs or bristles along femoral length (Fig. 19*a*). Anterior surface of mid femur just beyond mid length with a distinct concavity which is bordered below by very short curved black setulae (Fig. 19*e*) 12

— Posterior surface of fore femur without vestiture as above—with uniform weak hairs, with black or white hair tufts near base or with longer outstanding strong hairs or bristles along its length (Figs. 22*a*, 28*a*–46*a*, 48*a*–51*a*, 53*a*). Anterior surface of mid femur without concavity or with at most a shallow concavity 19

12. First tarsomere of fore leg without dorsal keel; 2nd tarsomere as wide as widest part of fore tibia and about 9/10 as wide as 1st tarsomere (Fig. 23*b*) (western) ....*latitarsis* **sp.nov.**

— First tarsomere of fore leg with weak dorsal keel on apical half or with strong dorsal keel on most of its length; 2nd tarsomere at most 4/5 as wide as fore tibia and 1st tarsomere (Figs. 19*a*, 20*b*) 13

13. First tarsomere of fore leg with moderately strong dorsal keel on apical half but without distinct keel on basal half (Fig. 19*a*). Anepimeron sometimes with a few hairs on lower half 14

— First tarsomere of fore leg with distinct dorsal keel over its entire length although keel sometimes becoming a little lower toward base of tarsomere (Fig. 20*b*). Anepimeron with hairs only on upper half..... 17

14. Apical half of ventral surface of mid tibia with suberect tangled dark hairs which on basal part of the strong apical tibial swelling are about as long as the least subapical tibial diameter (Fig. 25*l*). Anepimeron with hairs only on upper half, the hairs forming a compact tuft. Wing membrane entirely trichose (boreal and western nearctic; palaearctic) .....*nielseni* **sp.nov.**

— Apical half of ventral surface of mid tibia with very short scarcely discernible hairs; apical tibial swelling weak (Fig. 24*l*). Anepimeron sometimes with a few hairs on lower half, those on upper half not forming a compact tuft. Wing membrane entirely trichose or with bare areas near base 15

15. Basal half of anteroventral surface of mid tibia with tuft of short nearly straight subappressed hairs, the longest at most 1.5 times as long as least tibial diameter (Fig. 24*k*). Anepimeron with hairs on upper half only. Scutellar hairs mostly or entirely yellow (widespread) .....*nearcticus* **sp.nov.**

— Basal half of anteroventral surface of mid tibia with tuft of long erect wavy black hairs, the longest more than twice as long as tibial diameter (Fig. 19*e*). Anepimeron sometimes with hairs on lower half. Scutellar hairs entirely yellow or about ½ black 16

16. First tarsomere of hind leg strongly and abruptly constricted at mid length (Fig. 21*m, p*). Scutellar hairs yellow. Anepimeron usually with hairs only on upper half, rarely with hairs on lower half. Bare area of cell bm usually at least ½ as long as cell and reaching or nearly reaching its anterior margin, rarely less extensive (eastern) .....*inversus* Ide

— First tarsomere of hind leg gradually narrowed over apical 3/4 of its length (Fig. 19*m, p*). Scutellar hairs about ½ black. Anepimeron with at least a few hairs on lower half. Bare area of cell bm at most ⅓ as long as cell and well separated from its anterior margin (boreal and western) ..... *amplus* Curran

17. Lower katepisternal hairs long, at least 2/3 as long as arista. Hind tibia with setae of anterior surface sparse, those of basal third much shorter than those of apical two-thirds (Fig. 27*n*). First tarsomere of fore leg with keel becoming distinctly lower toward base of tarsomere. Wing membrane entirely trichose or with very small and indistinct bare areas at base of cells c and bm (western) .....*peltatoides* Curran

— Lower katepisternal hairs short, at most ½ as long as arista. Hind tibia with setae of anterior surface very dense, those of basal third almost as long as those of apical two-thirds (Figs. 20*m*, 26*n*). First tarsomere of fore leg with keel of nearly uniform height throughout (Fig. 20*b*). Wing membrane entirely trichose or with moderate bare areas at base of cells c and bm 18

18. Wing membrane entirely trichose. Basal half of anteroventral surface of mid tibia with tuft of long wavy erect black or yellow hairs, the longest about 3 times as long as tibial diameter (as in Fig. 19*e*). Anepimeron with very dense tuft of hairs, their bases visible only at lower edge of tuft (boreal and western) .....*holarcticus* **nom.nov.**

— Wing with about basal sixth of cell c and basal quarter of cell bm bare. Basal half of anteroventral surface of mid tibia with tuft of shorter, straighter, usually pale, subappressed hairs, the longest at most 1.5 times as long as tibial diameter (as in Fig. 24*k*). Anepimeron with moderately dense tuft of hairs, their bases visible throughout (western) .... *octavus* **sp.nov.**

19(11). Posterior surface of fore femur with 2 large dense or rather diffuse tufts of long wavy coarse black hairs preceded by a similar tuft of a few wavy white hairs (Figs. 28*a*–32*a*) 20

— Posterior surface of fore femur without 2 large subbasal tufts of black hairs—with uniform fine hairs, with 1 or 2 tufts of long hairs with flattened and broadened apices, with a subbasal tuft of a few long white hairs which may be followed by a single weak tuft of a few black hairs, or with a uniform row of widely spaced strong hairs or bristles over most of its length (Figs. 22*a*, 33*a*–46*a*, 48*a*–51*a*, 53*a*) 24

20. Mid coxa with slender finger-like ventral process (Fig. 31*h*). Fore femur beyond subbasal tufts with many long strong black hairs; 2nd tarsomere of fore leg about ⅙ as long as 1st tarsomere (Fig. 31*a*) (widespread) ..... *scutatus* (Meigen)

— Mid coxa without ventral process. Fore femur beyond subbasal tufts with 3 well-spaced long black bristles among shorter hairs; 2nd tarsomere of fore leg about 2/5 as long as 1st tarsomere (Figs. 28*a*–30*a*, 32*a*) 21

21. Fore tibia strongly broadened on apical third and with posteroapical angle broadly rounded; 1st tarsomere of fore leg strongly broadened posteriorly on about basal two-thirds, sharply angulate at this point and then with margin straight to apex (Fig. 32*a*). First 4 tarsomeres of mid leg yellow, 5th tarsomere brown above. Wing with cell bm entirely trichose (Alaska, British Columbia, Quebec) ..... *urakawensis* (Matsumura)

— Fore tibia less strongly broadened and with posteroapical angle subacute or narrowly rounded; 1st tarsomere only gradually broadened posteriorly, without distinct angle (Figs. 28*a*–30*a*). At least last 4 tarsomeres of mid leg brown to dark brown above. Cell bm with at least a small bare area near base, sometimes narrowly bare anteriorly over most of its length 22

22. Fore tibia uniformly broadened from base to apex; 1st tarsomere of fore leg gradually broadened from base to apex, its margins slightly divergent throughout and its apex distinctly arcuate; 2nd tarsomere with both basal and apical margins distinctly arcuate (Fig. 30*a*). Cell bm with only very small bare area near base (high boreal) ..... *nigrofemoratus* Kanervo

— Fore tibia uniformly broadened on basal three-quarters and then slightly more strongly broadened posteriorly; 1st tarsomere gradually broadened on basal half, parallel-sided on apical half and with apex transversely truncate; 2nd tarsomere subrectangular with apex transversely truncate or nearly so (Figs. 28*a*, 29*a*). Cell bm with small to rather large bare area (boreal and western) 23

23. Posteroapical angle of fore tibia distinctly rounded and extending posteriorly slightly beyond level of posterior margin of 1st tarsomere (Fig. 29*a*). Mid leg with 1st tarsomere dark, at most slightly paler than 5th tarsomere (Pacific coastal area) ..... *ciliatus* Bigot

— Posteroapical angle of fore tibia subacute, not extending posteriorly beyond level of 1st tarsomere (Fig. 28*a*). Mid leg with 1st tarsomere yellow to brown, usually much paler than 5th tarsomere (boreal and western) ..... *albimanus* (Fabricius)

24. Fore tibia with distinct longitudinal dorsal keel which becomes higher toward apex of tibia; 1st tarsomere of fore leg rather slender, slightly to strongly constricted at mid length (Fig. 48*a*). Tergites 3 and 4 yellow-orange with black posterior margin, without black median line (Fig. 69) (widespread) ..... *normae* Fluke

— Fore tibia without dorsal keel; 1st tarsomere of fore leg usually gradually widened beyond base, not at all constricted (Figs. 22*a*, 33*a*–46*a*, 49*a*–51*a*, 53*a*). Tergites 3 and 4 with or without black median line, sometimes mostly black (Figs. 70–80) 25

25. Mid femur near base of posteroventral surface with dense brush of stiff orange and black setae (Fig. 44*i*). Mid tibia distinctly and nearly uniformly broadened on about apical three-quarters, with dense anteroventral yellow hairs; 1st tarsomere of mid leg distinctly broadened and depressed (Fig. 44*f*). Tergites extensively yellow (widespread) ..... *quadratus* (Say)

— Mid femur without subbasal brush of setae, with at most 7 well-spaced yellow or black posteroventral bristles on basal half (Figs. 41*i*, 42*g*, 45*i*, 49*i*, 51*i*, 52*i*). Mid tibia slender or slightly and irregularly broadened on at most apical half, with or without dense ventral hairs; 1st tarsomere of mid leg neither broadened nor depressed (Figs. 33*e*, 34*e*, 36*k*, 39*k*, 50*f*). Tergites variable in colour, mostly yellow to mostly black 26

26. Posterior surface of fore femur just beyond base with a compact tuft of long hairs each of which bears a spearhead-like broadening at apex (Figs. 33*a*–35*a*) 27

— Posterior surface of fore femur with or without subbasal hair tuft, if tuft present the individual hairs not broadened apically (Figs. 22*a*, 36*a*–46*a*, 49*a*–51*a*) 29

27. Fore femur with 1 subbasal tuft of long hairs with slightly broadened apices, this tuft sometimes preceded by a single long slender pale hair (Fig. 35*a*). Mid tibia without long appressed or erect anteroventral hairs. Fore and mid tarsi entirely yellow. Tergite 5 with large anterolateral yellow spots (Fig. 70) (eastern) ..... *thompsoni* **sp.nov.**

— Fore femur with 2 subbasal tufts of long hairs with slightly to strongly broadened apices (Figs. 33*a*, 34*a*). Basal half of mid tibia with long appressed or erect anteroventral hairs (Figs. 33*e*, 34*e*). Fore and mid leg usually with 1 or more tarsomeres distinctly darker above than yellow 1st tarsomere. Tergite 5 with anterolateral yellow spots or entirely black 28

28. Tergite 5 black (Fig. 71). Hairs of basal tuft of fore femur pale throughout; fore tibia and fore tarsus rather narrow (Fig. 34*a*). Mid femur with many posteroventral hairs longer than femoral diameter; mid tibia with long erect black anteroventral hairs on basal third (Fig. 34*e*). Mid leg usually with 3rd and 4th tarsomeres darker above than 1st tarsomere (boreal) ..... *pilatus* **sp.nov.**

— Tergite 5 with a pair of large anterolateral yellow spots. Hairs of basal tuft of fore femur with apices brown to black; fore tibia and tarsus wider (Fig. 33*a*). Mid femur with posteroventral hairs much shorter than femoral diameter; mid tibia with long strongly appressed

black anteroventral hairs on basal half (Fig. 33*e*). Mid leg with first 4 tarsomeres yellow, 5th usually brown to black above (boreal and western) ..... *nodosus* Curran

29. Posterior surface of fore femur with a subbasal tuft of 2 or 3 closely appressed long white or yellowish hairs with wavy apices (Figs. 36*a*–43*a*, 45*a*, 46*a*) 30

— Posterior surface of fore femur without subbasal tuft of white hairs, either with nearly uniform fine hairs or with well-spaced longer hairs or long slender bristles over most of its length (Figs. 22*a*, 49*a*–51*a*, 53*a*) 39

30. Apical half of anteroventral surface of mid femur with a nearly regular row of 7–16 short stout black setae and sometimes with 1 or 2 strong curved hairs near or beyond end of row (Figs. 41*i*, 45*i*). Posterior surface of fore femur with 3–5 long, moderately strong, slightly wavy, black (or sometimes white) evenly spaced bristles on apical three-quarters (Figs. 41*a*, 45*a*) 31

— Anteroventral surface of mid femur without a row of strong setae, sometimes with a cluster of weak setae at about mid length or with fine preapical hairs (Fig. 42*g*). Posterior surface of fore femur with uniform fine hairs or with at most a row of 4 or 5 long weak black bristles (Figs. 36*a*–40*a*, 42*a*, 43*a*, 46*a*) 32

31. Tergites 3 and 4 each with a pair of large yellow spots. Mid femur and tibia entirely yellow; hind femur and tibia entirely yellow or each with a dark ring. Fore tibia nearly uniformly broadened from base to apex (Fig. 41*a*) (widespread) ..... *immarginatus* (Zetterstedt)

— Tergites 2–4 each with a pair of silvery spots on an entirely dark background (Fig. 72). Mid and hind femora and tibiae mostly black. Fore tibia abruptly broadened at about ¾ its length (Fig. 45*a*) (British Columbia) ..... *setipes* **sp.nov.**

32. Fore tibia strongly and abruptly broadened on apical two-fifths, slightly narrower apically than preapically (Figs. 43*a*, 46*a*) 33

— Fore tibia less strongly broadened, uniformly broadened from base to apex (Figs. 36*a*–40*a*, 42*a*) 34

33. Second and 3rd tarsomeres of fore leg each at most ¾ as long as wide (Fig. 43*a*). Basal half of anteroventral surface of mid tibia with erect or subappressed black hairs which are at least 3 times as long as tibial diameter. Hairs of anepisternum and of anepimeron mostly yellow-brown (boreal and western) ..... *podagratus* (Zetterstedt)

— Second and 3rd tarsomeres of fore leg each at least as long as wide (Fig. 46*a*). Anteroventral surface of mid tibia with only very short inconspicuous hairs. Hairs of anepisternum and of anepimeron usually entirely black (western) ..... *tenebrosus* Coquillett

34. Tergite 5 mostly or entirely yellow, with at most median stripe and narrow posterior margin black; tergites 3 and 4 with very large lateral yellow spots which are at least 9/10 as long as tergites and are often confluent medially (Fig. 74). Apical third of anteroventral surface of mid femur with weak wavy hairs which are at least as long as femoral diameter (Fig. 42*g*) (widespread) ..... *perpallidus* Verrall

— Tergite 5 entirely black or with at most small anterolateral obscure yellow spots; tergites 3 and 4 with silvery or submetallic lateral spots or, if with distinct subquadrate yellow spots, these are at most 4/5 as long as tergite and not confluent medially (Figs. 75, 76). Apical third of anteroventral surface of mid femur bare or with a few hairs much shorter than femoral diameter 35

35. Fore and mid femora black with apex narrowly yellow. First tarsomere of fore leg parallel-sided except at extreme base (Figs. 36*a*, 39*a*) 36

— Fore and mid femora entirely or mostly yellow, at most with dark stripes on part or all of their lengths. First tarsomere of fore leg parallel-sided only on apical half (Figs. 37*a*, 38*a*) or very slightly narrowed toward apex (Fig. 40*a*) 37

36. Face slightly but distinctly produced forward below (Fig. 3). Cells bm and cu*p* bare anteriorly on most of basal half. Posterior surface of fore femur with regular row of about 5 long strong black hairs on most of its length; fore tibia rather broad, with posterior margin irregular (Fig. 39*a*). Mid tibia with anteroventral hairs straight, rather sparse and of uniform length throughout and with 3 long strong black hairs on apical half of posteroventral

surface (Fig. 39*k*). Spots of tergites 3 and 4 distinctly yellowish with overlay of silvery pruinosity (Fig. 75) (British Columbia) ..... *hispidipes* **sp.nov.**

— Face nearly vertical (Fig. 6). Wing membrane entirely trichose. Posterior surface of fore femur with uniform fine hairs decreasing in length toward apex; fore tibia narrower, with regular margins (Fig. 36*a*). Mid tibia with short dense wavy anteroventral hairs on about middle three-quarters and without long posteroventral hairs (Fig. 36*k*). Spots of tergites 3 and 4 entirely silvery or with yellow background (boreal and western) .... *aeratus* Coquillett

37. Apex of fore tibia with posterior angle at most very slightly produced so that tibial apex is nearly obliquely truncate; 1st tarsomere of fore leg with posterior margin slightly curved on apical three-quarters so tarsomere is slightly narrower at apex than at mid length (Fig. 40*a*). Spots of tergites 3 and 4 entirely dark with strong silvery sheen (most northern specimens) or slightly to extensively yellow with an overlay of dense silvery pruinosity best seen in posterodorsal view (some northern and all southern specimens) (widespread) ..... *hyperboreus* (Staeger)

— Apex of fore tibia with posterior angle distinctly produced so that tibial apex is notched; 1st tarsomere of fore leg with apical half parallel-sided (Fig. 37*a*, 38*a*). Spots of tergites 3 and 4 entirely yellow or slightly metallic, with at most very sparse silvery pruinosity 38

38. Wing membrane with cell bc mostly bare and with a very small bare area at base of cell c and at base of cell bm. Fore femur beyond subbasal white hair tuft with fine mostly pale hairs which are at most a little longer than femoral diameter (Fig. 37*a*). Tergite 2 slightly longer than wide, and tergites 3 and 4 subquadrate (widespread) .... *angustatus* (Zetterstedt)

— Wing membrane entirely trichose. Posterior surface of fore femur beyond subbasal white hair tuft with longer stronger usually black hairs some of which are at least 1.5 times as long as tibial diameter (Fig. 38*a*). Tergite 2 at least slightly wider than long and tergites 3 and 4 about 1.33 times as wide as long (widespread) ..... *clypeatus* (Meigen)

39(29). Tergites black with silvery spots, without trace of yellow markings (Fig. 77). First tarsomere of fore leg as wide as long and strongly narrowed on basal half, the following 4 tarsomeres each progressively slightly narrower (Fig. 53*a*). Mid and hind tibiae black with bases and sometimes apices narrowly yellow (boreal and western, including Greenland) ..... *varipes* Curran

— Tergites 3 and 4 with large yellow spots or almost entirely yellow (Figs. 78–80). First tarsomere of fore leg at least 1.5 times as long as wide and strongly narrowed only very near base, the following 4 tarsomeres each progressively slightly narrower or 2nd tarsomere or 3rd tarsomere much narrower than the preceding tarsomere (Figs. 22*a*, 49*a*–51*a*). Mid and hind tibiae black with bases narrowly yellow, or mostly or entirely yellow 40

40. Face distinctly produced forward below (Fig. 5). Yellow spots of tergites 3 and 4 slightly wider than long (Fig. 78). Second tarsomere (*jaerensis*) or 3rd tarsomere (*parmatus*) of fore leg much narrower than preceding tarsomere (Figs. 22*a*, 50*a*). Hind femur black with apex narrowly yellow; hind tarsus entirely dark brown to black above 41

— Face vertical or slightly receding below (Fig. 4). Yellow spots of tergites 3 and 4 distinctly longer than wide, sometimes confluent medially (Figs. 79, 80). Second to 5th tarsomeres of fore leg each slightly narrower than preceding tarsomere (Fig. 49*a*, 51*a*). Hind femur entirely yellow or with at most a black ring on apical half; hind leg with 2nd and 3rd tarsomeres partly or entirely dull to bright yellow above 42

41. Fore tibia with many posterior hairs longer than tibial width; fore leg with 2nd tarsomere much wider than long and only slightly narrower than 1st tarsomere (Fig. 50*a*). Mid femur anteriorly without concavity, anteroventrally with only long fine hairs; mid tibia with many long fine anteroventral hairs much longer than tibial diameter (Fig. 50*f*). Hind tibia on apical half with several anterodorsal hairs which are about twice as long as tibial diameter (boreal) ..... *parmatus* Rondani

— Fore tibia with posterior hairs much shorter than tibial width; fore leg with 2nd tarsomere slightly longer than wide and much narrower than 1st tarsomere (Fig. 22*a*). Mid femur anteriorly beyond mid length with shallow concavity bordered below by short dense slightly curved black setulae, otherwise with only short anteroventral hairs; mid tibia with anteroventral hairs of basal half slightly longer than tibial diameter, otherwise with very short hairs. Hind tibia with only very short hairs (eastern, probably widespread) ..... *jaerensis* Nielsen

42. Tergites 3–5 with black median line broadly broken or absent or represented by a faint brownish line (Fig. 79). Lower katepisternal hairs less than ½ as long as 1st flagellomere. Mid tibia anteroventrally on basal two-thirds with dense wavy black hairs about 3 times as long as tibial diameter, otherwise with short appressed hairs (Fig. 47*g*) (widespread) ..... *modestus* Ide

— Tergites 3–5 with distinct black median line (Fig. 80). Lower katepisternal hairs about as long as 1st flagellomere. Mid tibia ventrally with only very short appressed hairs or with dense fine wavy mostly pale erect hairs subequal in length to tibial diameter on apical three-quarters 43

43. Mid tibia on apical three-quarters of ventral surface with dense wavy erect mostly pale hairs which are at least as long as tibial diameter; mid femur anteroventrally with at most a few scattered black setae (Fig. 49*i*) (eastern, coastal) ..... *orarius* **sp.nov.**

— Mid tibia ventrally with short pale or partly dark appressed hairs, without erect hairs; mid femur anteroventrally usually with a nearly regular row of 3–15 short stiff black or yellow setae (Figs. 51*i*, 52*i*) 44

44. Mid tibia with appressed anteroventral and posteroventral hairs mostly black; mid femur anteroventrally usually with a row of 3–15 short stiff black setae (rarely with only yellow setae), and with 4–6 strong black posteroventral bristles on basal half (Fig. 52*i*) (widespread) ..... *scambus* (Staeger)

— Mid tibia with appressed anteroventral and posteroventral hairs entirely yellow; mid femur anteroventrally with short stiff yellow setae or with 1 black seta, and with 3 or 4 very weak black posteroventral bristles (Fig. 51*i*) (eastern) ..... *scamboides* Curran

45(2). Apical half or more of posterior surface of fore femur with a regular row of 5 or more rather long stiff slightly flattened black setae, the row ending with a longer and more slender seta with a strongly curved apex (Fig. 54*a*) 46

— Posterior surface of fore femur with uniform or nearly uniform fine hairs, at most a few near apex slightly longer and with curved apices (Fig. 55*a*, 60*a*) 47

46. Fore femur entirely orange or with a blackish-brown posterior stripe, subbasally with a posterior row of 3–5 rather long strong yellow setae. Mid femur subbasally with a similar row of slightly longer yellow setae. Wing with cell bm entirely bare on at least basal half, usually with only a few microtrichia near apex (widespread) .. *coerulescens* (Williston)

— Fore femur blackish-brown with only narrow apex yellow-orange, subbasally usually with black setae but sometimes with some pale setae. Mid femur with subbasal setae black. Wing with cell bm usually entirely trichose, bare on at most anterobasal third (subarctic, including Greenland) ..... *lundbecki* (Collin)

47. Fore (and mid) tibiae posteriorly with a nearly regular row of weak to strong black bristles the longest of which are at least ⅓ as long as tibia (Figs. 56*c*–59*c*, 60*a*). Face with pruinosity uniform or with weak ripples or weak to strong punctures (Figs. 1, 7, 8) 48

— Fore (and mid) tibiae posteriorly with only short weak hairs which are at most twice as long as tibial diameter (Figs. 55*a*, 62*b*). Face with pruinosity uniform, neither rippled nor punctate 59

48. First tarsomere of fore leg with about 6 long weak posterior bristles, the last 1 or 2 with curved apices and about ⅔ as long as tarsomere (Fig. 60*a*) (arctic and alpine, including Greenland) 49

— First tarsomere of fore leg with only very short posterior hairs 50

49. Mid femur, at about ⅓ its length, with compact cluster of 2–4 moderately strong black bristles which are 1.5–1.75 times as long as femoral diameter; without distinct anteroventral bristles near base. Fore femur, at about ⅓ its length, with a loose to compact cluster of 3–5 strong ventral bristles some or all of which are about twice as long as the much weaker posteroventral bristles on basal third of femur. Silver-grey spots on tergite 2 as wide as long, on tergites 3 and 4 about 1.66 times as wide as long. Surstylus with shorter lobe, at its mid length, from 1.25 to 2.0 times as wide as longer lobe at its mid length (as in Fig. 83). Length 7.9–8.9 mm (northwestern, high boreal, and alpine) .... *yukonensis* **sp.nov.**

— Mid femur sometimes without distinct ventral bristles, sometimes with up to 9 very weak anteroventrals near base and at ⅓ its length with 1 slender bristle about 1.5 times as long as femoral diameter or 2 moderately strong well-separated bristles at most 1.25 times as long as femoral diameter. Fore femur with 2–9 irregularly spaced ventral bristles which are only slightly longer and stronger than posteroventral bristles on basal third of femur. Silver-grey spots on tergite 2 about ⅘ as wide as long, on tergites 3 and 4 subquadrate. Surstylus with shorter lobe, at its mid length, from 0.80 to 1.17 times as wide as longer lobe at its mid length. Length 4.8–7.6 mm (high boreal and arctic, including Greenland) ..... *carinatus* (Curran)

50. Pruinosity of face with oblique rows of punctures (Fig. 1) or with faint lateral ripples (Figs. 7, 8). Wing membrane sometimes slightly or extensively bare basally 51

— Pruinosity of face uniformly distributed with only tubercle or median stripe bare. Wing membrane entirely trichose 58

51. Face with oblique rows of rounded punctures over most of its surface (Fig. 1). Fore tibia with strong black posterior bristles (Fig. 57*c*, 59*c*). Abdominal markings metallic bluish or bronze, never with orange background (western) 52

— Face with faint oblique lateral ripples (Figs. 7, 8). Fore tibia with weaker posterior bristles (Figs. 56*c*, 58*c*). Abdominal markings sometimes with orange background (widespread) 55

52. Wing with cells c and bm bare or with a few scattered microtrichia near apex 53

— Wing with cells c and bm mostly densely trichose, bare only basally or anterobasally 54

53. Face with only tubercle shining black; face slightly broader and with coarser punctures (Fig. 1). Scutellum usually with only white hairs (western) ..... *stegnus* (Say)

— Face with shining median black stripe more extensive, usually reaching lower margin of face and extending above upper limit of tubercle; face slightly narrower and with finer punctures. Scutellum with black hairs at least posteriorly (western United States) .... *spinipes* **sp.nov.**

54. Wing with cells c and bm entirely trichose. Upper pleural hairs black. Face with only tubercle shining black, the area between tubercle and lower facial margin pruinose (as in Fig. 1). Fore tibia posteriorly with rather slender bristles on entire length, the bristles decreasing in length toward base and very short on about basal third (Fig. 59*c*) (western) ..... *stegnoides* **sp.nov.**

— Wing with cell c bare on about basal sixth and cell bm bare on about anterobasal third. Upper pleural hairs usually entirely pale. Face with shining median black stripe extending from lower facial margin to well above tubercle. Fore tibia posteriorly with 5–7 strong bristles of nearly equal length, without bristles on about basal quarter (Fig. 57*c*) (Oregon, California) ..... *hesperius* **nom.nov.**

55. Face moderately produced below, with anterior oral margin produced at least as far, and usually slightly farther, forward than facial tubercle (Fig. 8). Wing with cell bm bare or nearly so on at least basal half of anterior margin. Surstylus with dorsobasal lobe large (Fig. 95) (widespread) ..... *obscurus* (Say)

— Face only slightly produced below, with anterior oral margin not extending as far forward as facial tubercle (Fig. 7). Wing with microtrichia variable in extent but often present along most or all of anterior margin of cell bm. Surstylus with dorsobasal lobe smaller (Figs. 94, 96) 56

56. Wing membrane extensively bare — cell c trichose on at most apical fifth, cell bm with only a slender patch of microtrichia near apex, and cell cua_1 bare on entire width at base. Anepisternum usually entirely white-haired, rarely with some black hairs. Surstylus with dorsobasal lobe very small, the process beyond lobe curved and nearly as broad as base of surstylus (Fig. 96) (northwestern) ..... *sabulicola* **sp.nov.**

— Wing membrane more trichose — cell c trichose on at least apical half, cell bm trichose along entire posterior margin, and cell cua_1 entirely trichose. Anepisternum with at least a few black hairs near upper margin. Surstylus with dorsobasal lobe larger, the process beyond lobe nearly straight and more slender than base of surstylus before lobe (Fig. 94) 57

57. Lateral hairs of tergites almost all black, strong and long, the longest on tergite 3 at least ½ as long as apical width of tergite. Lower katepisternal hairs (near mid ventral line) black. Wing membrane entirely trichose. Posterior bristles of fore and mid tibiae longer and stronger, the longest about ½ as long as tibia, the first 1 on fore tibia very near base and preceded by only a few short hairs (Fig. 58) (western) ..... *squamulae* (Curran)

— Lateral hairs of tergites mostly pale, fine and short, the longest on tergite 3 about ⅓ as long as apical width of tergite. Lower katepisternal hairs white. Wing of eastern specimens with membrane mostly trichose, of western specimens with cell c with at least a small bare area at base and cell bm with at least a bare median stripe near base and often with much of anterior margin bare. Posterior bristles of fore and mid tibia shorter and weaker, the longest about ⅓ as long as tibia, the 1st distinct bristle on fore tibia at ⅓ or more tibial length and preceded by several shorter and weaker hair-like bristles (Fig. 56) (widespread) ..... *confusus* (Curran)

58(50). Face with weak but distinct keel between tubercle and upper end of face, with rather small tubercle. First tarsomere of mid leg with 3 strong black anteroventral setae on apical two-thirds of its length, all of which are at least as long as diameter of tarsomere (Fig. 61*j*) (boreal) ..... *setitarsis* **sp.nov.**

— Face without keel above antenna, with large tubercle. First tarsomere of mid leg without distinct anteroventral setae (Colorado) ..... *protrusus* **sp.nov.**

59(47). Abdomen with extensive orange markings 60

— Abdomen without orange markings, entirely dark 64

60. Legs almost entirely black, at most extreme apices of femora and bases of tibiae yellowish. Tergite 5 mostly or entirely orange (Fig. 81) (northwestern) ..... *rufigaster* **sp.nov.**

— Fore and mid femora yellow on at least apical half of anterior surface; fore and mid tibiae mostly or entirely yellow. Tergite 5 black or with a pair of obscure orange basal spots (Fig. 82) 61

61. Fore femur posteriorly near apex with 2 or 3 long black hairs with curled apices which contrast with the preceding shorter dense pale hairs; fore tibia posteriorly with dense fine pale hairs some of which are longer than tibial diameter (Fig. 55*a*). Face about ⅝ as wide as head. Wing with cell c bare at least at base, cell bm bare except at apex. Tergite 2 with a pair of orange spots; tergites 3 and 4 with orange spots widely separated from lateral margins (western) ..... *kelloggi* (Snow)

— Fore femur with sparser and shorter hairs which decrease in length toward apex and do not have curled apices; fore tibia with only very short hairs. Face not more than ½ as wide as head. Wing membrane entirely trichose or extensively bare. Tergite 2 black or mostly red-orange; tergites 3 and 4 either with orange spots which sometimes reach lateral margins or entirely red-orange 62

62. Wing membrane entirely trichose. Spots of tergites 3 and 4 yellow-orange, distinct, narrowed laterally (Fig. 82). Hairs of scutum and scutellum longer, the longest scutellar hairs about ⅔ as long as arista. Lower part of katepisternum, between upper and lower patches of hair, weakly but distinctly pruinose (widespread) ..... *rosarum* (Fabricius)

— Wing with base of cell c and most of cell bm bare. Either spots of tergites 3 and 4 red-orange, usually obscure, not narrowed laterally, or tergites 3 and 4 entirely red-orange. Hairs of scutum and scutellum very short, the longest scutellar hairs less than ½ as long

as arista. Lower part of katepisternum, between upper and lower patches of hair, strongly shining or weakly pruinose (western) 63

63. Tergite 2 black with submetallic bluish spots, 3 and 4 with basal red-orange spots, 5 black or with obscure basal orange spots. Lower part of katepisternum, between upper and lower patches of hair, strongly shining with only narrow posterior margin pruinose (western) ..... *rufimaculatus* **sp.nov.**

— Tergite 2 red-orange with anterior margin and lateral margins narrowly black; tergites 3–5 entirely red-orange. Lower part of katepisternum, between upper and lower patches of hair, entirely or almost entirely moderately pruinose (southern California) ..... *russatus* **sp.nov.**

64. Hairs of notopleural area partly or entirely black; scutellar hairs black 65

— Hairs of notopleural area white to yellow-brown; scutellar hairs partly to entirely pale 67

65. Face above tubercle with 2 or 3 weak vertical ridges bordering a weak median keel or shallow groove. Lower part of katepisternum, between upper and lower patches of hair, weakly but distinctly pruinose (western, arctic, and alpine) ...*pullatus* **sp.nov.** (in part)

— Face above tubercle smoothly rounded, without trace of ridges or median keel. Lower part of katepisternum, between upper and lower patches of hair, mostly or entirely shining black 66

66. Wing membrane entirely trichose. Shining area of katepisternum, above lower patch of hairs, extending to posterior margin of sclerite. Surstylus elongate-oval, broadest at mid length (Fig. 90*b*); paramere (Fig. 90*c*) with 2 spines (Yukon Territory) ..... *coracinus* **sp.nov.**

— Wing with extreme base of cell c and posterobasal part of cell bm bare. Shining area of katepisternum, above lower patch of hairs, bordered posteriorly by a narrow but distinct band of minute pile. Surstylus strap-like, narrowest at mid length (Fig. 91*b*); paramere (Fig. 91*c*) with 1 spine (western) ..... *latus* (Curran)

67. Legs almost entirely black, only extreme apices of femora and extreme bases of tibiae obscurely yellowish. Antenna black. Wing membrane entirely trichose 68

— Legs with at least broad apices of fore and mid femora and most of fore and mid tibiae orange to red-orange. Antenna with 1st flagellomere broadly orange below. Wing membrane entirely trichose or with cells c and bm slightly or extensively bare 69

68. Fore tibia posteriorly with dense fine mostly pale erect hairs almost twice as long as tibial diameter; 1st tarsomere of fore leg with similar but shorter hairs (Fig. 62*b*). Mid femur anteroventrally without black setae, with long fine white hairs on basal half (Yukon Territory) ..... *woodi* **sp.nov.**

— Fore tibia posteriorly with short black appressed hairs; 1st tarsomere of fore leg with only very short hairs. Mid femur anteroventrally with an irregular row of short weak stiff black setae on most of its length, without pale hairs (western, arctic, and alpine) ..... *pullatus* **sp.nov.** (in part)

69. Femora entirely red-orange. Face near upper margin usually with a very faint indication of a median groove. Cell bm bare or nearly so on at least basal third (western) ..... *willistoni* (Goot)

— Hind femur dark brown to black on at least basal half, fore and mid femora usually black at least at base. Face near upper margin smoothly rounded medially, with distinct ridges and median groove, or with a weak but distinct median keel. Wing microtrichia variable, the membrane almost entirely trichose to extensively bare 70

70. Upper part of face evenly rounded medially, without ridges or grooves or a median keel. Paramere stout, with short curved spine closely appressed to base (Fig. 92*c*) (widespread) ..... *concinnus* (Snow)

— Upper part of face with weak but distinct median keel or weak submedian ridges and shallow median groove. Paramere slender, with long spine well separated from base (Fig. 93*c*) 71

71. Face sparsely pruinose, laterally with minute oblique striations in integument. Upper part of face with moderately strong median keel. Wing with cell bm at least ⅓ bare. Paramere with spine moderately separated from base (Fig. 93*c*) (central nearctic) ..... *luteipennis* (Curran)

— Face more densely pruinose, without striations in integument. Upper part of face with very weak median keel or with very shallow median groove. Wing with cell bm entirely trichose or with at most a narrow bare median stripe near base. Paramere with spine more widely separated from base (boreal and western) ..... *striatus* **sp.nov.**

72(1). First tarsomere of fore leg distinctly and uniformly broadened toward apex; 2nd tarsomere slightly wider than long, 3rd tarsomere almost twice as wide as long (Fig. 11); tarsus mostly or entirely dark brown to black above. Yellow spots of tergite 2 confluent medially (Fig. 66) (widespread) ..... *granditarsis* (Forster)

— First tarsomere of fore leg usually parallel-sided, if very slightly broadened toward apex then tarsus entirely yellow-orange; 2nd tarsomere slightly longer than wide, 3rd tarsomere only slightly wider than long. Yellow spots of tergite 2, if present, separated by black median line 73

73. Face with oblique rows of rounded punctures (as in Fig. 1) or with faint oblique lateral ripples in the pruinosity (as in Figs. 7, 8) 74

— Face with pruinosity uniformly distributed except on tubercle, with neither punctures nor ripples 80

74. Face with distinct oblique rows of punctures over most of its surface (as in Fig. 1) (western) 75

— Face with faint lateral ripples in the pruinosity (as in Figs. 7, 8) (widespread) 78

75. Wing with cells c and bm extensively trichose, the latter with microtrichia on most or all of the posteroapical half 76

— Wing with cells c and bm bare or with at most a very few microtrichia near apex ... 77

76. Wing with cells c and bm entirely trichose. Face with only tubercle shining, the area between tubercle and lower facial margin pruinose (as in Fig. 1) (western) ..... *stegnoides* **sp.nov.**

— Wing with cell c bare on about basal third to two-thirds and cell bm bare on about antero-basal half. Face with shining median black stripe extending from lower facial margin to well above tubercle (Oregon, California) ..... *hesperius* **nom.nov.**

77. Face with only tubercle shining black; face slightly broader and with coarser punctures (as in Fig. 1) (western) ..... *stegnus* (Say)

— Face with shining median black stripe more extensive, usually reaching lower margin of face and extending above upper limit of tubercle; face slightly narrower and with finer punctures (western United States) ..... *spinipes* **sp.nov.**

78. Face moderately produced below, with anterior oral margin produced at least as far, and usually slightly farther, forward than facial tubercle (as in Fig. 8) (widespread) ..... *obscurus* (Say)

— Face only slightly produced below, with anterior oral margin not extending as far forward as facial tubercle (as in Fig. 7) 79

79. Wing with membrane entirely trichose or with at most a minute bare area at base of cell c (western) ..... *squamulae* (Curran)

— Wing of eastern specimens with at least a small bare area near base of cell bm, of western specimens with base of cells c and bm both extensively bare ..... *confusus* (Curran) ..... *sabulicola* **sp.nov.**

80. Tergites 3–5 entirely orange; tergite 2 black (northwestern) ..... *rufigaster* **sp.nov.**

— Tergites 3–5 with at least posterior margins narrowly black, if these tergites mostly orange then tergite 2 also mostly orange 81

81. Tergite 3 with orange spots at least ½ as long as tergite and almost twice as long as those of tergite 4, those of both tergites extending to lateral margins; tergites 2 and 5 black or with very obscure reddish markings (widespread) ..... *rosarum* (Fabricius)

— Tergites 3 and 4 with or without yellow or orange spots, if with yellow spots they are of approximately the same size on both tergites and sometimes do not reach the lateral margins, and tergite 2 has similar although sometimes less distinct yellow spots 82

82. Tergites 3 and 4 each with a pair of large orange spots which are widened laterally, *and* tergite 5 black. Cells c and bm entirely bare. Face without trace of median keel above tubercle (western) ..... *kelloggi* (Snow)

— Tergites very variable in pattern, often with dark metallic or grey or silver pruinose spots (if tergites 3 and 4 each with a pair of large yellow or orange spots then tergite 5 at least partly yellow or cells c and bm extensively trichose). Face sometimes with a distinct median keel or ridge on upper part .....other species

Platycheirus aeratus Coquillett
(Figs. 6, 36; Map 1)

Platycheirus aeratus Coquillett, 1900, p. 430.
Platycheirus pauper Hull, 1944, p. 77. **syn.nov.**

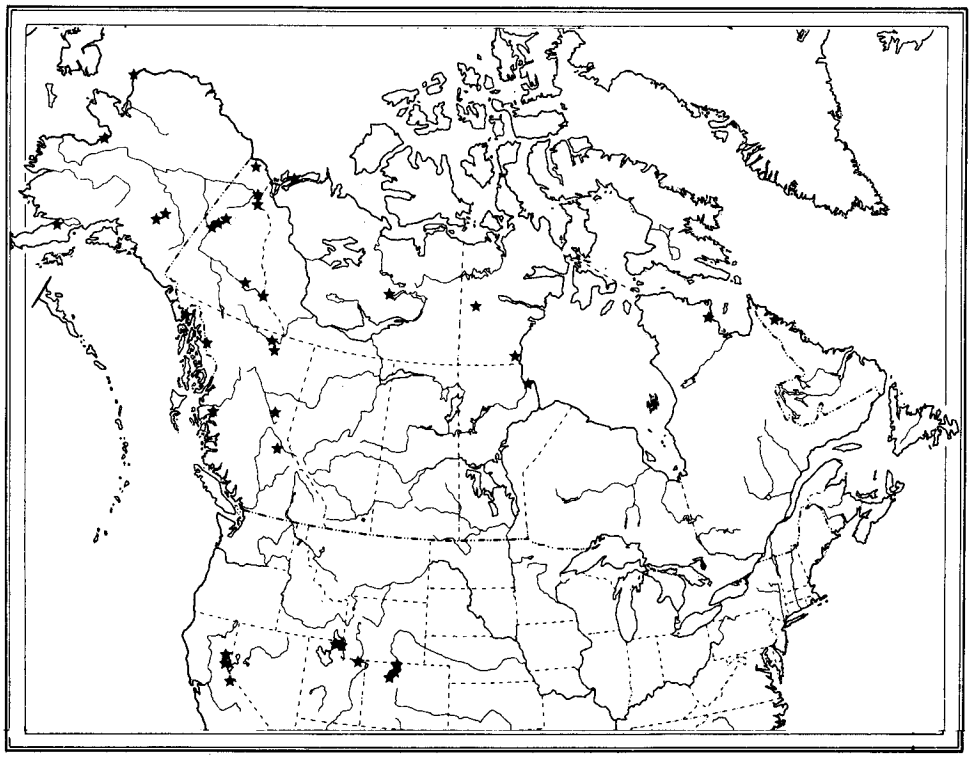
Length 5.3–7.3 mm.

Male. Face (Fig. 6) nearly vertical, with very low slightly shining tubercle, otherwise with sparse to very sparse grey pruinosity so that face is blackish. Scutum shining, with disc and lateral margins very slightly pruinose. Thoracic hairs yellow to yellow-brown; posterior part of anepisternum with hairs uniform, moderately dense, crinkly. Wing membrane entirely trichose. Knob of halter yellow. Legs mostly black with narrow apices of femora, fore tibia except posterior streak, basal half and apex of mid tibia, broad base and narrow apex of hind tibia, and fore and mid tarsi yellow to yellow-brown. Fore leg (Fig. 36): trochanter with short pale or black setulae on ventral surface; femur with posterior subbasal tuft of 2 or 3 long wavy closely appressed white hairs, otherwise with only fine black hairs, those on posterior and posteroventral surfaces up to twice as long as femoral diameter; tibia slightly and nearly uniformly broadened from base to apex, with posteroapical angle only slightly produced; 1st tarsomere only slightly broadened beyond base, almost parallel-sided, about 1.75 times as long as wide; 2nd tarsomere subquadrate or slightly wider than long. Mid femur usually with a few short rather weak black setae near middle of anteroventral surface, otherwise with fine black hairs, some of those of posteroventral surface usually a little stronger and about twice as long as femoral diameter. Mid tibia scarcely broadened or depressed, on middle half of anteroventral surface with dense subappressed wavy black hairs about as long as tibial diameter, on second quarter of posteroventral surface with similar but shorter hairs. First tarsomere of hind leg scarcely swollen, about 4.5 times as long as its greatest depth. Abdomen slender, with pale markings densely silvery-grey pruinose, rarely with obscure orange-brown ground colour. Tergite 2 mostly dull black, submetallic along most of lateral margins, rarely with trace of silvery spots; tergites 3 and 4 each with pair of subquadrate spots on anterior half which reach anterior margin but not lateral margin; tergite 5 with anterolateral angles submetallic, not distinctly pruinose.

Female. Not distinguishable from those of several similar species.

Type Specimens. *Platycheirus aeratus* Coquillett. Type locality: Muir Inlet, AK. Two male syntypes in U.S.N.M. were examined. One, labelled "Muir Inlet 6-12-99" and "Harriman Expedition 99 T. Kincaid Collector" is here designated as lectotype; it has been so labelled. The other, headless, with these two labels plus "Type No. 5239 U.S.N.M" and "Platycheirus aeratus Coq." has been labelled as paralectotype.

Platycheirus pauper Hull. Type locality: Trail Ridge Road, CO. Holotype male in C.N.C.; examined by me.



MAP 1. Distribution of *Platycheirus aeratus* Coquillett.

Distribution. Alaska, northern and western Canada, south to California and Colorado (9500 ft. to 12 800 ft.) (Map 1). B.C., VII, VIII; Que., VII.

Specimens Examined. Alaska, 23 ♂♂; Canada, 45 ♂♂; U.S.A., 28 ♂♂.

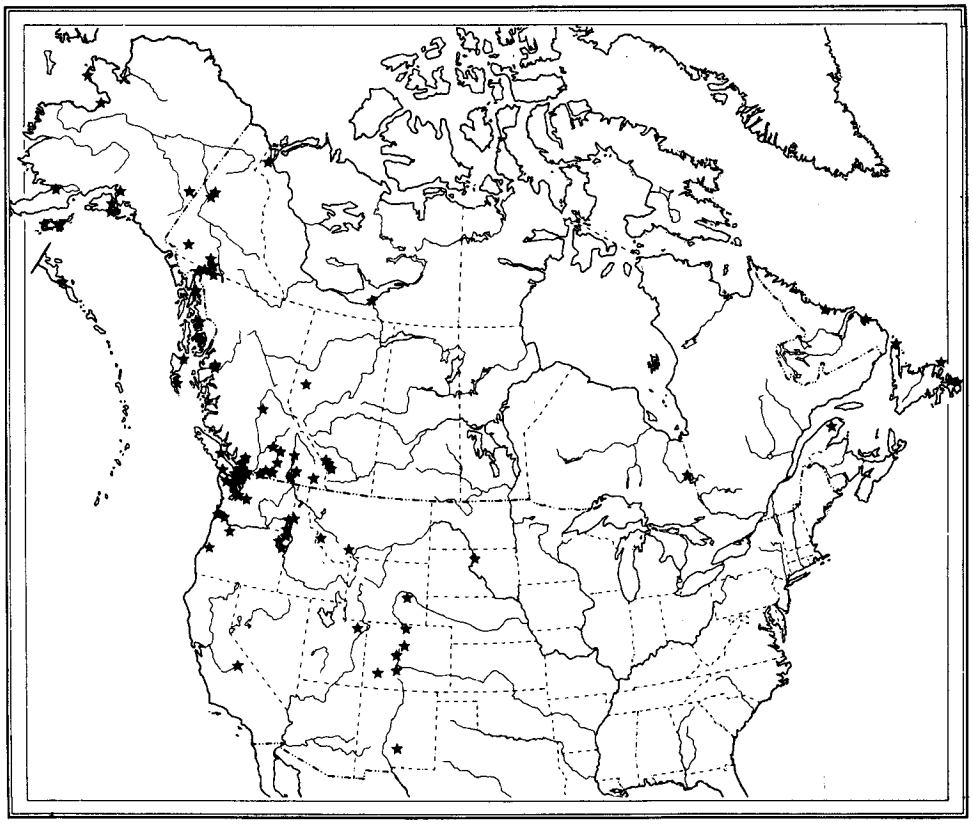
Platycheirus albimanus (Fabricius)

(Fig. 28; Map 2)

Syrphus albimanus Fabricius, 1781, p. 434.
Syrphus (*Platycheirus*) *albimanus*: Macquart, 1834, p. 456.
Platycheirus albimanus: Rondani, 1857, p. 120.

Length 6.2–9.6 mm.

Male. Face slightly protruding below (as in Fig. 3), with low shining tubercle, otherwise weakly to moderately grey pruinose. Antenna black, 1st flagellomere sometimes obscurely orange below. Scutum and scutellum very weakly pruinose, with mixed black and white or yellow hairs. Pleura a little more densely pruinose, with white or partly black hairs. Hairs of lower part of katepisternum fine, all white or partly black, the posterior hairs much longer than the anterior hairs. Wing with very small to moderately large bare areas at base of cells c and bm, the former sometimes bare on basal half, the latter sometimes narrowly bare anteriorly on basal five-sixths. Knob of halter brown to blackish-brown. Legs mostly dark brown to black with narrow apices of femora, narrow bases of tibiae, broad apex of mid tibia and 1st tarsomere of mid leg yellow to brown and dorsal surface of fore tibia and all of fore tarsus (except sometimes the brownish 5th tarsomere) whitish-yellow. Fore leg (Fig. 28): ventral surface of trochanter with short strong white to dark brown setae; femur posteriorly with subbasal tuft of 3 or 4 closely appressed long



MAP 2. Distribution of *Platycheirus albimanus* (Fabricius).

crinkly white hairs followed by 2 loose tufts of respectively about 5 and 10 coarse crinkly black hairs and 3 or 4 widely spaced longer slender black bristles; tibia uniformly broadened from base to about ¾ its length, then slightly more strongly broadened posteriorly and with posteroapical angle triangularly produced and subacute, with a few strong black or white posterior hairs which may be up to 3 times as long as tibial width; 1st tarsomere slightly widened posteriorly from base to about mid length, then parallel-sided to the transverse apex, about twice as long as wide and about as wide as tibia; 2nd tarsomere subrectangular, with nearly parallel sides and transverse apex, 1.25–1.75 times as wide as long and slightly narrower than 1st; 3rd tarsomere similar but slightly smaller; last 2 tarsomeres progressively slightly narrower. Mid femur with nearly regular anteroventral row of 6–12 short stiff black setae on apical half to two-thirds followed by 1 long recurved black hair. Mid tibia simple, usually with 1–3 long black posterior hairs just beyond mid length, the longest as much as 3.5 times as long as tibial diameter. First tarsomere of hind leg scarcely swollen, about 5 times as long as its greatest depth. Abdomen moderately slender; spots of tergites strongly metallic, silvery-grey pruinose, those of tergites 3 and 4 sometimes obscurely orange-brown; spots of tergite 2 obscure, restricted to middle third of tergite or extending forward laterally to its anterior margin; spots of tergites 3 and 4 on anterior half of tergite, extending only obscurely to anterior and lateral margins; tergite 5 with at most obscure anterolateral metallic spots.

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: England. In the Banks Coll., B.M.(N.H.), London, above the label "Syrphus albimanus Fabr. Sp. Ins. No. 63" is a female of a species of *Melanostoma* labelled "63/47" and with the label "Type" beside it. The male of *albimanus* of authors and of this paper agrees much better with the original description (especially with "Pedes fusci tibiis anticis albis") than does the female at present in the Banks collection. I have no reasonable doubt that substitution of specimens has occurred and therefore use the name in its traditional sense.

Distribution. Alaska, northern and western Canada, south to California (2700 m), New Mexico, and South Dakota (Map 2); Europe; Siberia. B.C., IV–VIII, X; Ont., Que., VI.

Specimens Examined. Alaska, 27 ♂♂; Canada, 119 ♂♂; U.S.A., 40 ♂♂; Europe, 71 ♂♂; Siberia, 3 ♂♂.

Discussion. Torp (1984) used the name *cyaneus* (Müller), 1764 for this species; he pointed out that Lundbeck (1916) had regarded the two names as synonymous. However, Müller's description of abdominal markings and leg colour of *Musca cyanea* disagree markedly with *albimanus* of authors. I therefore use the name *albimanus*.

Collin (1931) recorded *albimanus* from Greenland from females only; I have seen no males of the species from Greenland and think it probable that Collin had females of *varipes* Curran.

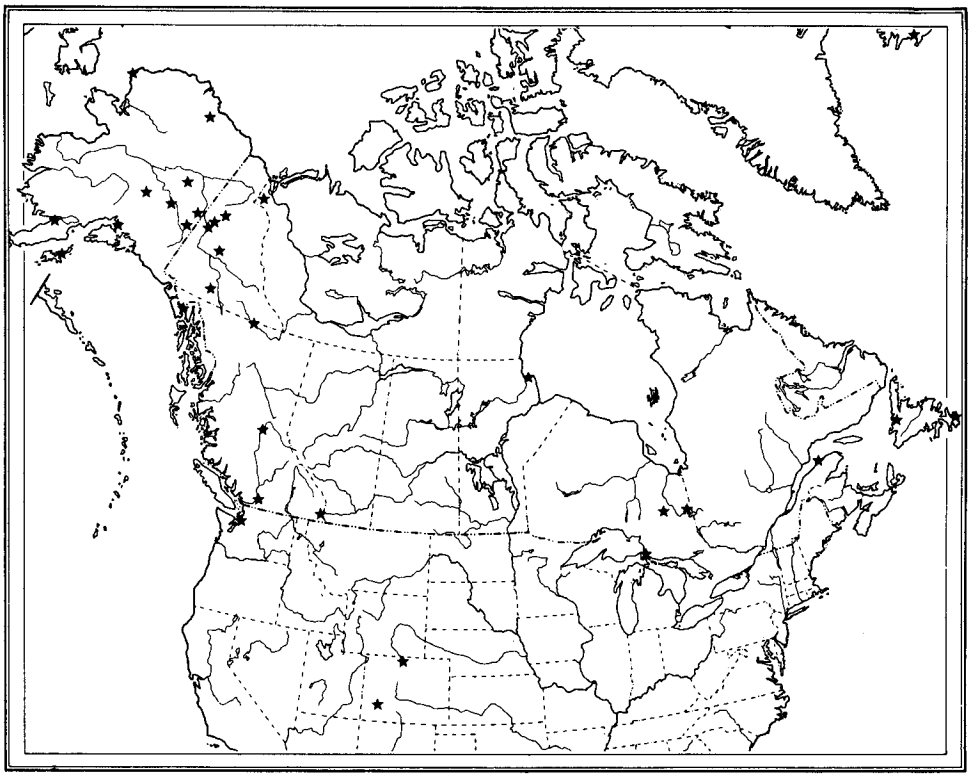
Platycheirus amplus Curran

(Figs. 2, 19; Map 3)

Platycheirus amplus Curran, 1927, p. 4.

Length 7.2–8.7 mm.

Male. Face produced forward below (Fig. 2), with rather dense olivaceous pruinosity and shining tubercle. Scape and pedicel dark brown, sometimes obscurely paler below; 1st flagellomere dark brown above, yellow-orange on lower half or slightly less. Scutum subshining, mostly white-haired with a few black hairs sublaterally. Scutellar hairs varying from ½ black to mostly black. Pleural hairs varying from white to brown, mostly with crinkly apices. Upper half of anepimeron with hairs abundant but not forming a dense tuft, lower half with a few hairs. Hairs of lower part of katepisternum all pale, fine, the longest at most ⅓ as long as arista. Wing membrane usually with very small bare areas near base of cells c and bm, and behind basal half of vein Cu*p*. Knob of halter brown. Legs dull yellow; posterior surface or more of fore femur, basal half or more of mid femur, about apical third of mid tibia, and upper surface of 1st tarsomere of mid leg usually brown to dark brown; 1st tarsomere of fore leg yellowish white; coxae and hind leg dark brown to black. Fore leg (Fig. 19*a*): trochanter with weak black ventral setae about ⅓ as long as basal diameter of femur; entire length of posterior surface of fore femur with many long, slightly flattened, dark brown to black hairs; tibia gradually broadened from base, more abruptly broadened preapically and narrowed at apex, with moderately long posterior hairs on apical half; 1st tarsomere about twice as long as wide, slightly wider than fore tibia, with apex obliquely truncate and with weak dorsal keel on about apical half; 2nd tarsomere about as long as wide, just over ½ as wide as 1st, without dorsal keel; last 3 tarsomeres simple. Mid leg (Fig. 19*e*): femur with shallow bare excavation on about third quarter of anterior surface, the excavation preceded by a few slender black anteroventral setae, bordered below by very short stout curved black setae, and followed by a cluster of fine crinkly upward-directed black hairs almost as long as femoral diameter; tibia slightly arcuate, slightly constricted subbasally, only very slightly swollen near apex, on basal half with dense anteroventral tuft of erect black crinkly hairs up to 3 times as long as tibial diameter, with dense short black hairs on third quarter of posterior surface, and with scarcely discernible hairs on apical third of ventral surface. Anterior surface of hind tibia (Fig. 19*m*) with very short stout upcurved black setae on basal third, with similar but slightly longer



MAP 3. Distribution of *Platycheirus amplus* Curran.

setae on apical two-thirds; 1st tarsomere of hind leg (Fig. 19*p*) swollen on basal half, tapering almost uniformly to slender apex. Abdomen (as in Fig. 68) robust, black, with dull yellow or sometimes slightly silvery markings which do not reach lateral margins; tergite 2 with a pair of subquadrate to subrectangular spots of variable size; tergites 3 and 4 each with a very large pair of subquadrate spots; tergite 5 with a pair of small subtriangular spots of variable size. Sternites orange-brown to black.

Female. Not distinguishable from those of several related species.

Type Specimen. Type locality: Low Bush, Lake Abitibi, Ont. Holotype male in C.N.C.; examined by me.

Distribution. Alaska, northern and western Canada, south to Washington and Colorado (Map 3); northern Sweden (Bjurholm, Ång., 8.VII.1967) (J.W. Boyes) (C.N.C.); Iceland (64°23′N, 21°32′W, 15.VI.1943) (T.C. Thatcher) (Utah State Univ.). Y.T., VI, VII; Que., VII.

Specimens Examined. Alaska, 33 ♂♂; Canada, 18 ♂♂; U.S.A., 3♂♂; Europe, 2♂♂.

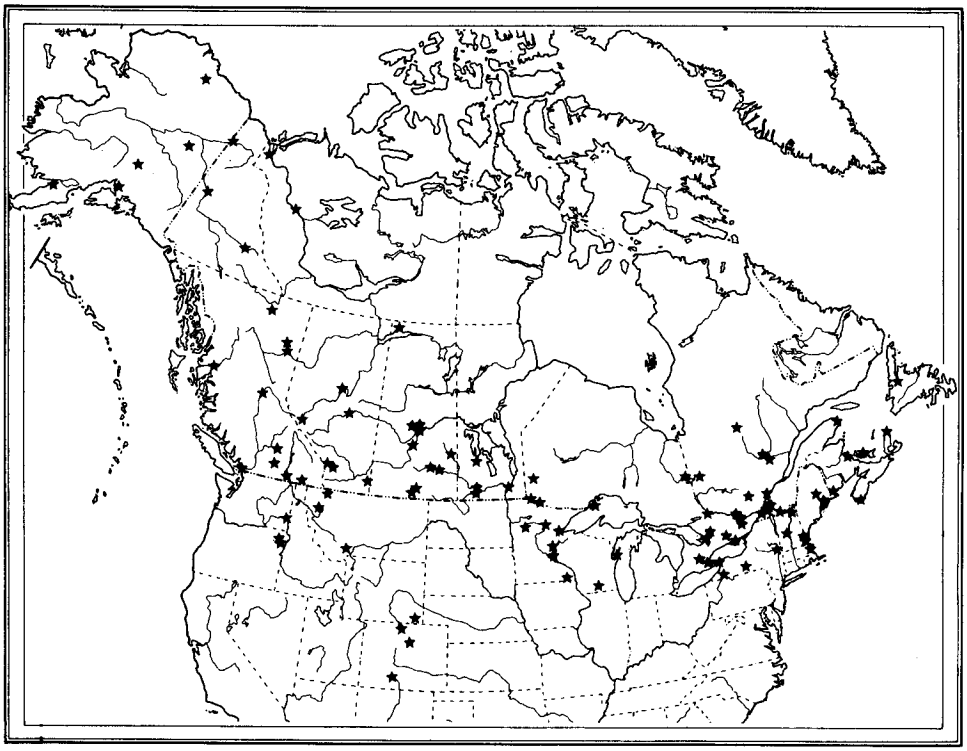
Platycheirus angustatus (Zetterstedt)

(Figs. 37, 76; Map 4)

Scaeva angustata Zetterstedt, 1843, p. 762.
Platychirus angustatus: Verrall, 1870, p. 129.

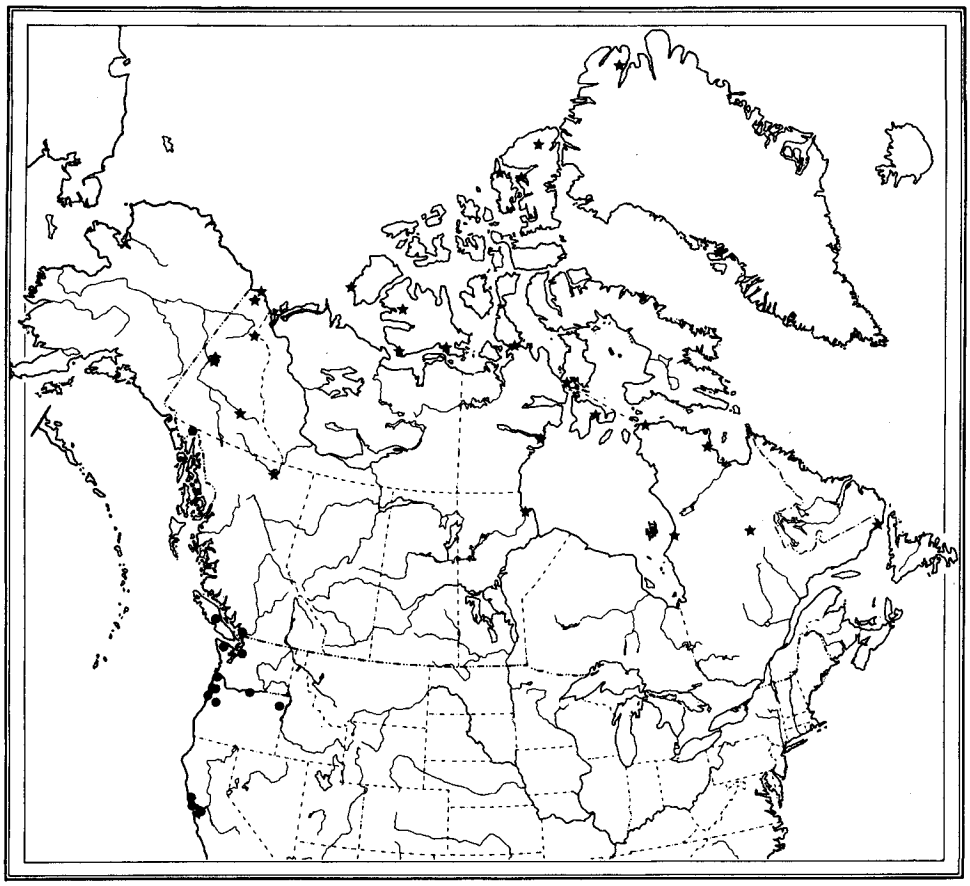
Length 5.7–7.9 mm.

Male. Face nearly vertical, with weak subshining tubercle (as in Fig. 6), otherwise densely grey pruinose. Antenna black, 1st flagellomere sometimes obscurely orange below



MAP 4. Distribution of *Platycheirus angustatus* (Zetterstedt).

at extreme base. Scutum mostly shining with weak pruinosity anteromedially and on notopleuron, with pale yellow hairs. Scutellum shining, with pale yellow hairs. Pleura weakly pruinose, with pale hairs; katepisterum with anterior hairs of lower patch stiff, black. Wing with cell bc mostly bare and with small bare areas at base of cells c and bm. Knob of halter yellow. Legs mostly yellow; coxae and trochanters black; fore and mid femora sometimes with dark brown posterior stripe; hind femur with broad black ring which may leave only narrow base and apex yellow; hind tibia with black ring on basal third to half; hind tarsus mostly brown to black above, with 2nd and 3rd tarsomeres sometimes dark yellow. Fore leg (Fig. 37): trochanter with very short stiff yellow setulae below; femur with subbasal posterior tuft of 2 closely appressed long crinkly white hairs, with other hairs fine, rather sparse, mostly pale, at most a little longer than femoral diameter; tibia uniformly broadened from base to apex, with posteroapical angle distinctly produced and extending about ⅓ length of 1st tarsomere, without distinctive hairs; 1st tarsomere slightly narrower than apex of tibia, about 3/5 as wide as long, narrowed posteriorly on basal third, parallel-sided on apical two-thirds; last 4 tarsomeres slightly narrower than 1st. Mid femur usually with an irregular group of up to 13 short weak black anteroventral setae on basal half, the setae sometimes yellow and less conspicuous, and sometimes with 2 or 3 long weak black ventral bristle-like hairs on basal half. Mid tibia usually with fine wavy erect dark anteroventral hairs about twice as long as tibial diameter on basal half, sometimes with hairs shorter, pale and appressed and with short appressed crinkly pale hairs on most of ventral surface. First tarsomere of hind leg only slightly swollen, about 3 times as long as its greatest depth. Abdomen (Fig. 76): slender, with tergite 2 slightly or distinctly longer than wide, with tergites 3 and 4 subquadrate or slightly longer than wide; pale markings of tergites usually yellow to yellow-orange, rarely with brassy tint, never with distinct



MAP 5. Distribution of *Platycheirus carinatus* (Curran) (★) and of *P. ciliatus* Bigot (●).

silvery pruinosity; tergite 2 with a pair of spots of variable size separated from margins and with rounded inner margin; tergites 3 and 4 each with a pair of subquadrate spots which reach anterior and lateral margins, on tergite 3 spots from 1/7 to 1/5 length of tergite, on tergite 4 from 1/2 to 2/3 length of tergite; tergite 5 black or with small obscure submetallic or orange anterolateral spots.

Female. Not distinguishable from those of several similar species.

Type Specimens. Type locality: Scandinavia. Syntypes presumably in Zoological Institute, Lund.

Distribution. Alaska, Canada, south to Colorado, Wisconsin and Massachusetts (Map 4); Europe; Siberia; Japan*. B.C., V–VII; Ont., Que., IV–VII, IX.

Specimens Examined. Alaska, 15 ♂♂; Canada, 233 ♂♂; U.S.A., 50 ♂♂; Europe, 20 ♂♂; Siberia, 5 ♂♂.

Platycheirus carinatus (Curran), comb.nov.

(Fig. 60; Map 5)

Melanostoma carinata Curran, 1927, p. 11.
Carposcalis carinata: Fluke, 1958, p. 265.

Length 4.8–7.6 mm.

Male. Face very weakly greyish pruinose, without punctures or ripples, produced slightly forward below, with weak but distinct median keel extending from tubercle to upper end of face, with tubercle shining, variable in size, as in Figure 8 or slightly more or less abrupt. Antenna black, with 1st flagellomere slightly longer than deep. Scutum and scutellum subshining, with hairs varying from entirely white to mostly black. Pleura weakly pruinose, with hairs entirely white or mostly black on upper half. Wing membrane entirely trichose. Knob of halter pale brown. Legs black, with extreme apices of fore and mid femora and sometimes of hind femur, and narrow bases of fore and mid tibiae, and sometimes of hind tibia, yellowish. Fore femur with rather long strong black posterior hairs of which a few near apex have curled apices, posteroventrally on basal third with 6–10 short stiff weak black bristles, ventrally near basal third with 2–9 loosely and irregularly spaced, slightly longer and stronger black setae which are about as long as femoral diameter; fore tibia with a single series of up to 17 weak black posterior bristles which are short on basal third of tibia and up to ⅓ tibial length near apex of tibia, the last 3 or 4 very close together and almost forming a fascicle; fore tarsus simple, with 1st tarsomere posteriorly having about 6 long weak curved black bristles, the longest of which are about ⅝ as long as tarsomere (Fig. 60). Mid femur sometimes with up to 9 short weak black anteroventral bristles on basal third, sometimes with 1 slender black bristle about 1.5 times as long as femoral diameter or with 2 moderately strong well-separated bristles at most 1.25 times as long as femoral diameter; mid tibia with posterior bristles similar to those of fore tibia but slightly weaker and strongly appressed on at least basal half of tibia; mid tarsus simple. First tarsomere of hind leg moderately swollen, about 4 times as long as its greatest depth. Abdomen opaque black with shining lateral margins and with large rectangular or subquadrate densely silver-grey pruinose spots which on tergite 2 are about ⅘ as wide as long and on tergites 3 and 4 are subquadrate and which may, from some angles, show a brown-orange background colour. Surstylus with shorter lobe, at its mid length, from 0.80 to 1.17 times as wide as longer lobe at its mid length.

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: Umanak, Greenland. Holotype male in A.M.N.H; examined by me.

Distribution. Arctic and high boreal Canada, Greenland (Map 5). B.C., VI, VII; Que., VI, VII.

Specimens Examined. Canada, 137 ♂♂; Greenland, 56 ♂♂.

Biology. *Platycheirus carinatus* lives in the higher and more barren parts of the mountain slopes in northern Yukon Territory (D.M. Wood, personal communication). This accords with its wide distribution in the arctic and its abundance in northern Ellesmere I. (63 ♂♂ taken at Lake Hazen) and northern Greenland. At the two southernmost localities at which *carinatus* has been taken in western Canada (Summit Lake, B.C.; Dickson Lake, Mt. Mye, Y.T.) it occurred at 5000 ft.

***Platycheirus ciliatus* Bigot**

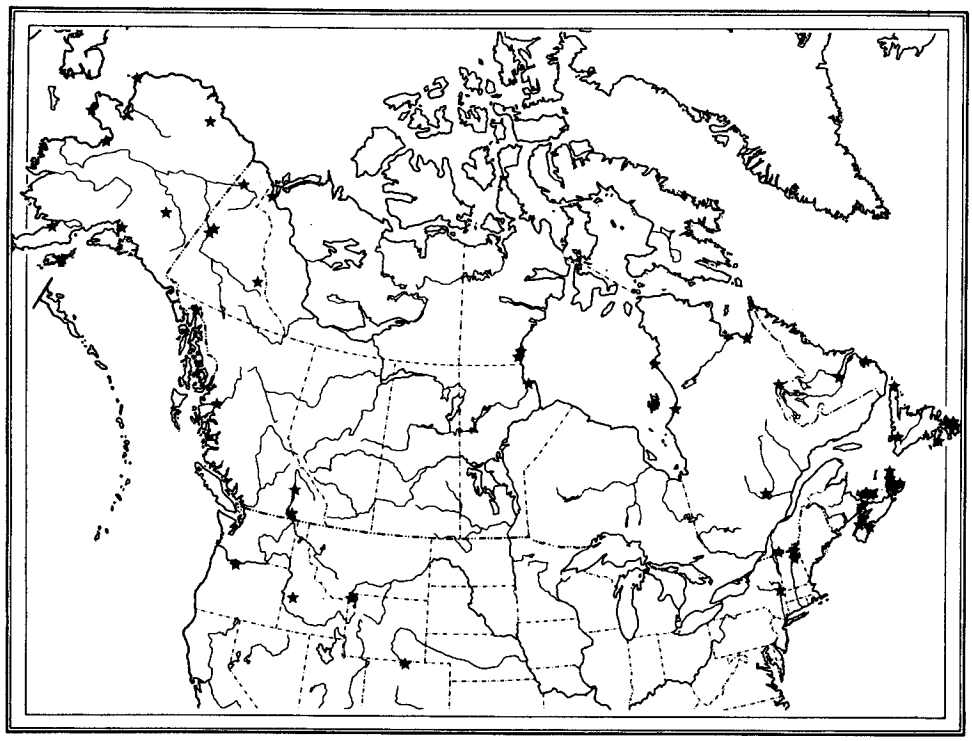
(Fig. 29; Map 5)

Platycheirus ciliatus Bigot, 1884, p. 74.
Platycheirus frontosus Lovett, 1919, p. 247. **syn.nov.**

Length 7.7–10.0 mm.

Male. Extremely similar to that of *albimanus*, differing as follows: Fore leg with last tarsomere brown to dark brown above; mid tarsus brown to dark brown throughout, scarcely paler near base than at apex. Fore tibia (Fig. 29) with posteroapical angle distinctly rounded and projecting slightly beyond level of posterior margin of 1st tarsomere.

Female. Not distinguishable from those of several related species.



MAP 6. Distribution of *Platycheirus clypeatus* (Meigen).

Type Specimens. *Platycheirus ciliatus* Bigot. Type locality: California. Holotype male presumably lost; not found by me in Hope Museum, Oxford, nor in B.M.(N.H.).

Platycheirus frontosus Lovett. Type locality: Corvallis, OR. Holotype male in Calif. Acad. Sci.; examined by me.

Distribution. Western British Columbia, south to central California (always near Pacific coast) (Map 5). B.C., VI.

Specimens Examined. Canada, 3 ♂♂; U.S.A., 16 ♂♂.

Discussion. The differences between this form and *albimanus* are very slight and the two may be conspecific, as they were considered to be by Verrall (1901). The difference in shape of the fore tibia is so constant that I feel it better to treat the forms as distinct, at least until more material is available. As *albimanus* is known to occur in California only at one locality at 2700 m, and as the species represented by the type of *frontosus* occurs along the coast, it is probable that the type of *ciliatus* (from California) was of the latter species rather than of *albimanus*.

Platycheirus clypeatus (Meigen)
(Fig. 38; Map 6)

Syrphus clypeatus Meigen, 1822, p. 335.
Syrphus (*Platycheirus*) *clypeatus*: Macquart, 1834, p. 547.
Platycheirus clypeatus: Rondani, 1857, p. 119.

Length 6.0–8.8 mm.

Male. Very similar to that of *angustatus*, differing as follows: Hairs of thorax slightly longer and more brassy in colour. Wing membrane entirely trichose. Legs slightly darker;

mid femur usually dark brown on about basal half. Fore femur (Fig. 38) posteriorly beyond subbasal white tuft with longer stronger usually black hairs which are at least 1.5 times as long as femoral diameter. Mid femur sometimes with short black anteroventral setae on entire length, with long strong black ventral hairs more numerous. Mid tibia with anteroventral hairs on basal half, and ventral hairs, erect or suberect. Abdomen more robust; tergite 2 at least slightly wider than long, sometimes 1.33 times as wide as long; tergites 3 and 4 about 1.33 times as wide as long. Pale spots of tergites sometimes with sparse silvery pruinosity apparent in oblique posterior view, more variable in size, those of tergite 2 usually small and wider than long and those of tergites 3 and 4 often not reaching lateral margin. Tergite 5 usually without pale spots, very rarely with orange lateral spots.

Female. Not distinguishable from those of several similar species.

Type Specimens. Type locality: Europe (Aachen?). Syntypes presumably in M.N.H.N., Paris.

Distribution. Alaska, Canada, south to Oregon, Colorado and New York (Map 6); Europe; Siberia; Japan. B.C., V, VIII; Que., VI, VII.

Specimens Examined. Alaska, 46 ♂♂; Canada, 156 ♂♂; U.S.A., 9 ♂♂; Europe, 57 ♂♂; Siberia, 5 ♂♂; Japan, 5 ♂♂.

Biology. Specimens were taken in Nova Scotia in damp open sphagnum fen and in *Carex* marsh.

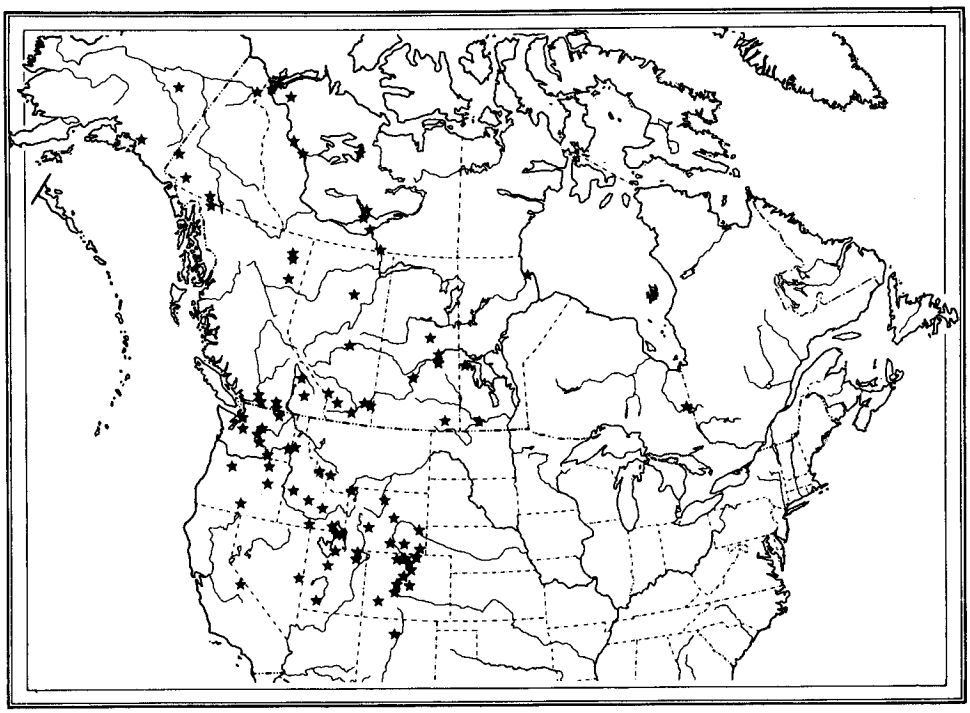
Platycheirus coerulescens (Williston), comb.nov.

(Fig. 54; Map 7)

Melanostoma coerulescens Williston, 1887, p. 49.
Carposcalis coerulescens: Fluke, 1958, p. 265.
Scaeva ambigua, of American authors, not Fallén, 1817.

Length 5.7–9.1 mm.

Male. Face very slightly protruding below, with uniform moderately dense greyish pruinosity and rather large shining tubercle (profile as in Fig. 8). Antenna black with 1st flagellomere at least narrowly orange below at base. Scutum and scutellum nearly shining, pleura slightly whitish pruinose; thoracic hairs all white. Wing extensively bare on basal half, cell c bare on most of basal half, cell r almost entirely bare, cell bm bare on at least basal four-fifths, and cell cu*p* narrowly bare anteriorly. Knob of halter yellow. Legs mostly dark brown to black with the following areas dull yellow-orange: fore femur except posterior streak, apical half of mid femur and apex of posterior femur, basal half of fore and mid tibiae, basal quarter of hind tibia and last tarsomere of fore leg. Fore leg (Fig. 54): femur posteriorly on apical seven-ninths with regular row of 9–12 strong straight black bristles which increase in strength toward femoral apex and are up to twice as long as femoral diameter, this row followed by a single longer bristle with a slender recurved apex, ventrally on basal half with a row of 3–5 short strong acute yellow bristles the longest of which is slightly shorter than femoral diameter; tibia slender, not at all depressed, posteriorly on apical half with a row of long straight subappressed white hairs the longest of which is about 2.5 times as long as tibial diameter; tarsus slender, not broadened nor depressed. Mid femur anteroventrally on basal third with a row of 2–5 short strong acute yellow or rarely black bristles the longest of which is about twice as long as femoral diameter; mid tibia cylindrical, posteriorly near apex with a few long pale hairs similar to those of fore tibia. First tarsomere of hind leg slightly swollen, about 4 times as long as its greatest depth. Abdomen with dull yellow or orange strongly silver-grey pruinose spots; tergite 2 with spots small, just beyond mid length of tergite, rounded anteriorly and with posterior margin oblique, sometimes greatly reduced; tergites 3 and 4 with spots on anterior half but spots obliquely produced posterolaterally.



MAP 7. Distribution of *Platycheirus coerulescens* (Williston).

Female. Not distinguishable from those of several similar species.

Type Specimens. Type locality: Colorado. Three male syntypes in U.S.N.M. were examined. One, labelled "Col.", "Acc. 19, 702 Williston", "Type No. 821 U.S.N.M." and "Melanostoma coerulescens Will." is here designated as lectotype; it has been so labelled. The other two specimens, each with the first two of the above labels, have been labelled as paralectotypes.

Distribution. Alaska, Canada, south in western mountains to California and New Mexico (Map 7). B.C., IV, VII, VIII.

Specimens Examined. Alaska, 6 ♂♂; Canada, 112 ♂♂; U.S.A., 126 ♂♂.

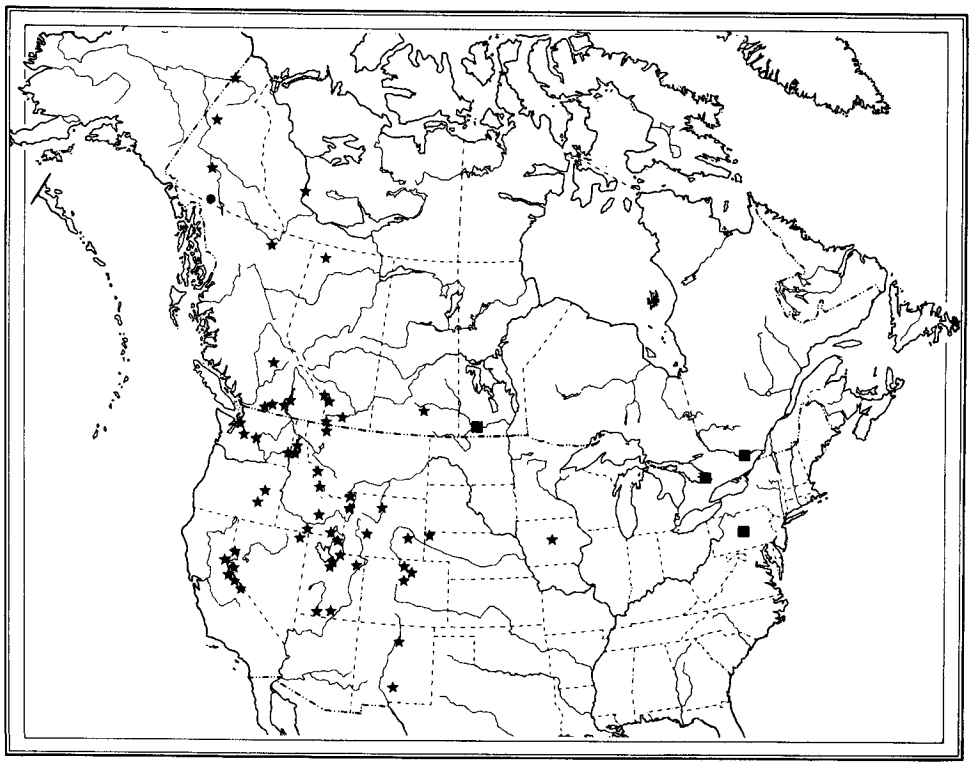
Platycheirus concinnus (Snow), comb.nov.

(Fig. 92; Map 8)

Melanostoma concinnum Snow, 1895, p. 229.

Length 7.7–10.5 mm.

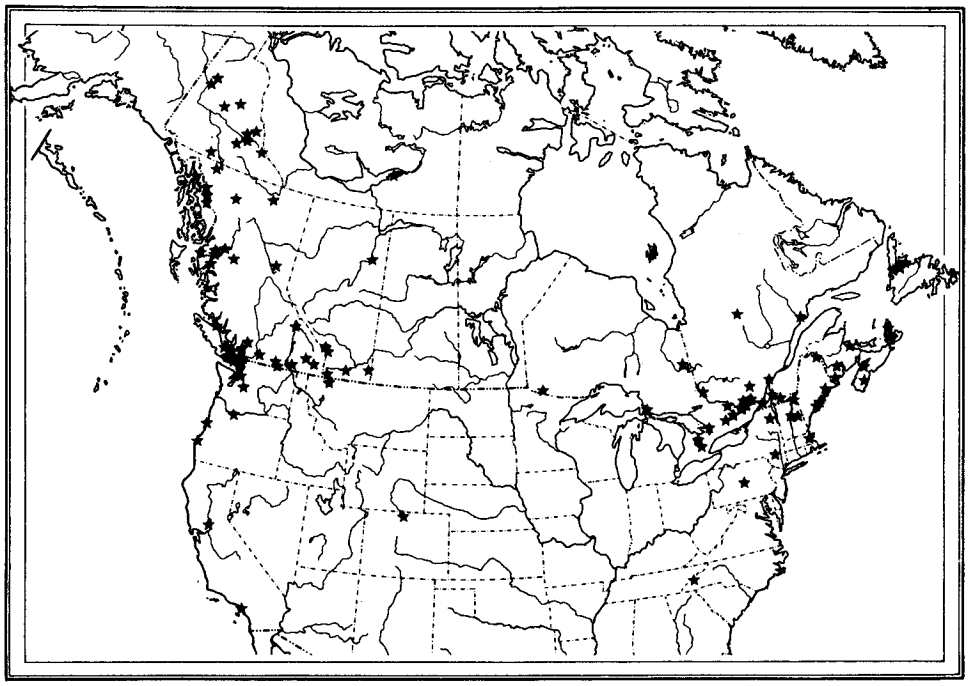
Male. Face very slightly protruding below, with low slightly compressed tubercle (as in Fig. 2), moderately grey pruinose, with tubercle shining but otherwise without median shining stripe, with upper part smoothly rounded and without median keel or grooves. Antenna black with 1st flagellomere extensively orange below. Thorax usually with slight bluish tint, not brassy, the hairs white, rather variable in length, the longest scutellar hairs varying from slightly shorter to slightly longer than arista. Pleura subshining to shining; katepisternum, between upper and lower patches of hair, strongly shining except along narrow posterior margin. Wing with microtrichia variable; cell c bare at least at base, sometimes entirely bare on basal third and narrowly bare posteriorly on middle third; cell bm varying from almost entirely trichose to bare except narrowly posteriorly and at apex,



MAP 8. Distribution of *Platycheirus concinnus* (Snow) (★), of *P. coracinus* sp.nov. (●), and of *P. discimanus* Loew (■).

usually bare on most of basal third to half. Knob of halter orange. Legs variable in colour; coxae and trochanters dark brown to black; fore and mid femora sometimes entirely orange or with brown areas posteriorly, more often black at base or over most of length; hind femur usually black with apex narrowly orange, rarely narrowly orange at base; tibiae orange with posterior surface partly brown and with hind tibia sometimes extensively darkened; fore and mid tarsi orange to brown above; hind tarsus dark brown above. Legs unmodified, without outstanding hairs or bristles; femoral hairs variable in length. First tarsomere of hind leg moderately swollen, about 3.5 times as long as its greatest depth. Abdomen opaque black, with tergites having shining lateral margins and dark bluish spots which may have faint greyish pruinosity. Tergite 2 with small lateral spots; tergite 3 with large anterolateral spots which are narrowly separated medially and strongly broadened laterally; tergite 4 with similar spots which may be confluent medially and with shining posterior margin leaving an opaque black triangle on disc; tergite 5 shining. Surstylus (Fig. 92*b*) with slender thumb-like basal lobe, with main arm slightly curved, nearly parallel-sided. Paramere (Fig. 92*c*) with stout base and short curved closely appressed spine. Aedeagus as in Figure 92*d*.

Female. Frons with pruinose spots extending narrowly inward to cover at least ⅔ width of frons. Entire antenna orange below. Thoracic hairs very short. Cell c sometimes bare on basal four-fifths, cell bm bare on at least basal half. Abdomen with bluish spots often confluent medially on tergites 2–4 and less clearly defined than in male. (Description based on females taken with males.)



MAP 9. Distribution of *Platycheirus confusus* (Curran).

Type Specimens. Type locality: Mountain Park, CO. Two male syntypes are in the Snow Mus. Ent., Univ. Kans., Lawrence; they were examined by me. One, labelled "27", "August", "Mountain Park Colorado, F.H. Snow", "Type" and "Melanostoma concinnum Snow" is here designated as lectotype; it has been so labelled. The other, from Magdalena, NM, has been labelled as a paralectotype.

Distribution. Canada, south to California, New Mexico, and Iowa (Map 8). B.C., VI–VIII.

Specimens Examined. Canada, 23 ♂♂; U.S.A., 124 ♂♂.

Discussion. The males show considerable variation in length of thoracic and femoral hairs and both sexes in wing microtrichia and in leg colour. It is possible that more than one species is included under this name.

Platycheirus confusus (Curran), comb.nov.

(Figs. 8, 56, 94; Map 9)

Melanostoma confusum Curran, 1925, p. 112.
Carposcalis confusa: Fluke, 1958, p. 265.

Length 6.0–8.2 mm.

Male. Face produced only slightly forward below, with lower facial margin not extending as far forward as facial tubercle; with broad shining median stripe extending from lower margin to well above tubercle, laterally with faint oblique ripples in the greyish pruinosity (Fig. 8). Antenna black with 1st flagellomere obscurely orange below. Angle of junction of eyes about 100°. Scutum and scutellum nearly shining, with black hairs. Pleura very weakly pruinose; at least upper hairs, and sometimes most hairs of anepisternum and anepimeron and sometimes of upper part of katepisternum, black; other pleural

hairs white. Wing membrane clear or very slightly brownish; eastern specimens with a very small bare area at base of cell c and a narrow strip along middle of basal fifth of cell bm bare; western specimens with from basal tenth to basal three-fifths of cell c bare or nearly so and usually with an anterior strip, broad basally and narrowing apically, on about basal three-quarters of cell bm, bare; all specimens with cell cua_1 entirely trichose. Knob of halter blackish-brown. Legs mostly dark brown to blackish, with narrow apices of femora and most of fore and mid tibiae obscurely orange-brown. Femora with only weak hairs; fore tibia with a regular posterior row of weak curved black bristles, the longest of which are about ⅓ as long as tibia, beginning at ⅓ or more tibial length (Fig. 56); mid tibia with a row of similar black bristles on about apical half to three-fifths; tarsi unmodified; 1st tarsomere of hind leg scarcely swollen, about 5 times as long as its greatest depth. Abdomen moderately slender; lateral hairs of tergites mostly pale, fine and short, the longest on tergite 3 about ⅓ as long as apical width of tergite; tergite 2 with elongate metallic copper or bronzy lateral spots which have the inner margins slightly pruinose and at their widest point are separated by about 5/7 the width of the tergite; tergites 3 and 4 on anterior half with similar narrowly separated or obscurely confluent spots which sometimes have an orange or orange-brown tint and are broadened posterolaterally where they extend just beyond the mid length of the tergite; tergite 5 with anterolateral angles obscurely metallic. Surstylus (Fig. 94) with shorter lobe of moderate size, the longer lobe nearly straight and slightly more slender than base of surstylus.

Female. Similar to male, differing as follows: Frons mostly weakly brownish or greyish pruinose, shining only around ocelli and immediately above antennae. Thoracic hair short, white except sometimes for a few black scutal and marginal scutellar hairs. Bare areas of wing usually more extensive in western specimens, sometimes with most of cell c and up to anterobasal three-quarters of cell bm bare. Legs usually paler, sometimes with much of fore and mid legs orange-brown. Fore and mid tibia sometimes with a few longer white or black posterior hairs which are shorter than tibial diameter. Abdomen more robust, with metallic spots of tergite 2 much larger and separated by about ⅓ width of tergite.

Type Specimen. Type locality: Orillia, Ont. Holotype male in C.N.C.; examined by me.

Distribution. Alaska, Canada, south to California, Colorado and North Carolina (Map 9). B.C., V–VIII; Ont., Que., IV–VII.

Specimens Examined. Alaska, 1 ♀; Canada, 254 ♂♂, 301 ♀♀; U.S.A., 52 ♂♂, 29 ♀♀.

Biology. Specimens taken in the Ottawa area were mostly in a large marsh with many boreal Diptera (in May) and in a large sphagnum bog (in June, with one in July). Many specimens were taken on Cape Breton I., N.S., in early June, mostly in upland bogs and adjacent coniferous forests. Two specimens from New Brunswick (in C.N.C.) were reared from *Adelges piceae*.

Discussion. The apparent wide geographic separation of the two populations of this species (Map 9), as well as the almost consistent difference in extent of wing microtrichia in the eastern and western specimens, suggests that two species may be involved. However, the male terminalia are nearly identical in specimens from widely separated localities. *Platycheirus squamulae* (Curran) may be a variant of *confusus*, but the wing microtrichia are even more extensive than in eastern specimens of *confusus*, and the leg bristles and abdominal hairs differ in the males, so that it seems likely that *squamulae* is specifically distinct. *Platycheirus sabulicola* sp.nov., with a different surstylus and reduced wing microtrichia, and a very different habitat, is undoubtedly distinct from *confusus*, although females of the two species may not always be separable.

Platycheirus coracinus sp.nov.
(Fig. 90; Map 8)

Length 7.3 mm.

Male. Face vertical, with large almost round not prominent shining tubercle, otherwise very slightly grey pruinose. Antenna black with 1st flagellomere obscurely orange below and as deep as long. Thorax strongly shining with hairs mostly short and black, long and pale on lower part of katepisternum. Katepisternum shining between upper and lower hair patches, without posterior band of short pile. Wing membrane entirely trichose. Knob of halter yellow. Legs black with femora and tibiae shining and rather stout, without outstanding hairs and bristles, with posterior hairs of fore and mid femora shorter than femoral diameter. First tarsomere of hind leg moderately swollen, about 4 times as long as greatest depth. Abdomen opaque black; tergite 2 shining laterally, tergites 3 and 4 each with a pair of large very obscure slightly greyish anterolateral spots. Surstylus (Fig. 90*b*) elongate-oval, widest at mid length, without basal thumb-like lobe. Paramere (Fig. 90*c*) with 2 strong spines. Aedeagus (Fig. 90*d*) with long slender subbasal lobe and with many ventral spicules on apical half.

Female. Unknown.

Type Specimen. Holotype male: YUKON TERRITORY, 10 km S Carcross, 18.VII.1980, 1830 m (G.& M. Wood). C.N.C. Type No. 17271.

Distribution. Yukon Territory, 1830 m (Map 8); VII.

Specimens Examined. Canada, 1 ♂.

Platycheirus discimanus Loew
(Fig. 12; Map 8)

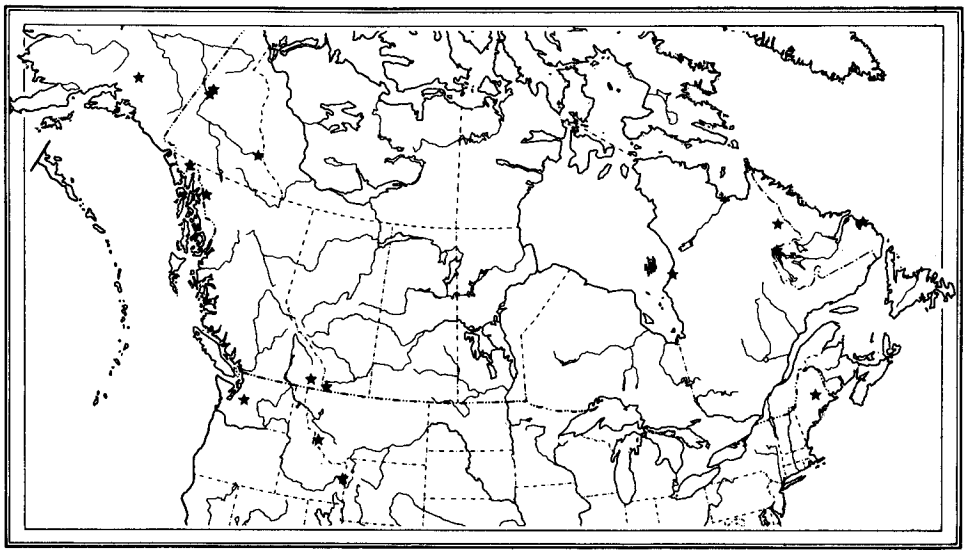
Platycheirus discimanus Loew, 1871, p. 227.

Length 6.2–6.8 mm.

Male. Face moderately protruding, strongly broadened below, with distinct median keel and/or submedian grooves above, weakly silvery pruinose, with only tubercle and area below it shining (as in Fig. 3 but with tubercle less abrupt above). Antenna black. Scutum, scutellum, and pleura subshining with mixed white to dark brown hairs. Wing membrane entirely trichose. Knob of halter yellow. Legs dark brown, with first 2 tarsomeres of fore and mid legs pale to dark yellow. Fore leg (Fig. 12*a*): trochanter with many short, rather weak, ventral black setulae; femur without distinctive hairs or bristles; tibia very slightly broadened from base to apex, only very slightly depressed, with dense fine crinkly posterior hairs increasing in length toward apex, the longest about 3 times as long as tibial diameter; 1st tarsomere subtriangular, nearly transverse apically, widest just before apex, as long as wide and twice as wide as apex of fore tibia; 2nd tarsomere subrectangular, twice as wide as long and about ⅓ as long as 1st tarsomere; last 3 tarsomeres normal. Mid leg (Fig. 12*j*): femur without distinctive hairs or bristles; tibia with dense anteroventral hairs on basal third the longest of which are at least 4 times tibial length, with similar but sparser posterior hairs on about middle third; 1st tarsomere strongly compressed, more than twice as deep as wide; 2nd tarsomere very slightly compressed; last 3 tarsomeres normal; ventral setae of tarsus yellow. Hind tibia with short hairs; 1st tarsomere of hind leg rather strongly swollen, thickest just before mid length, about 3 times as long as its greatest depth. Abdomen moderately stout, tergites 2–4 each with a large subquadrate pair of silvery spots.

Female. Not distinguishable from those of several similar species.

Type Specimens. Type locality: Asch, Czechoslovakia. Lectotype in the Zoological Museum of Humboldt University, Berlin, D.D.R. (Nielsen 1972).



MAP 10. Distribution of *Platycheirus flabellus* Hull.

Distribution. Central Canada, Pennsylvania (Map 8); Europe; Siberia* (recorded by Wirth *et al.* [1965] from British Columbia to Quebec, south to Oregon and Maine, but these records not verified by me). Manitoba, V.

Specimens Examined. Canada, 13 ♂♂; U.S.A., 1♂; Europe, 6 ♂♂.

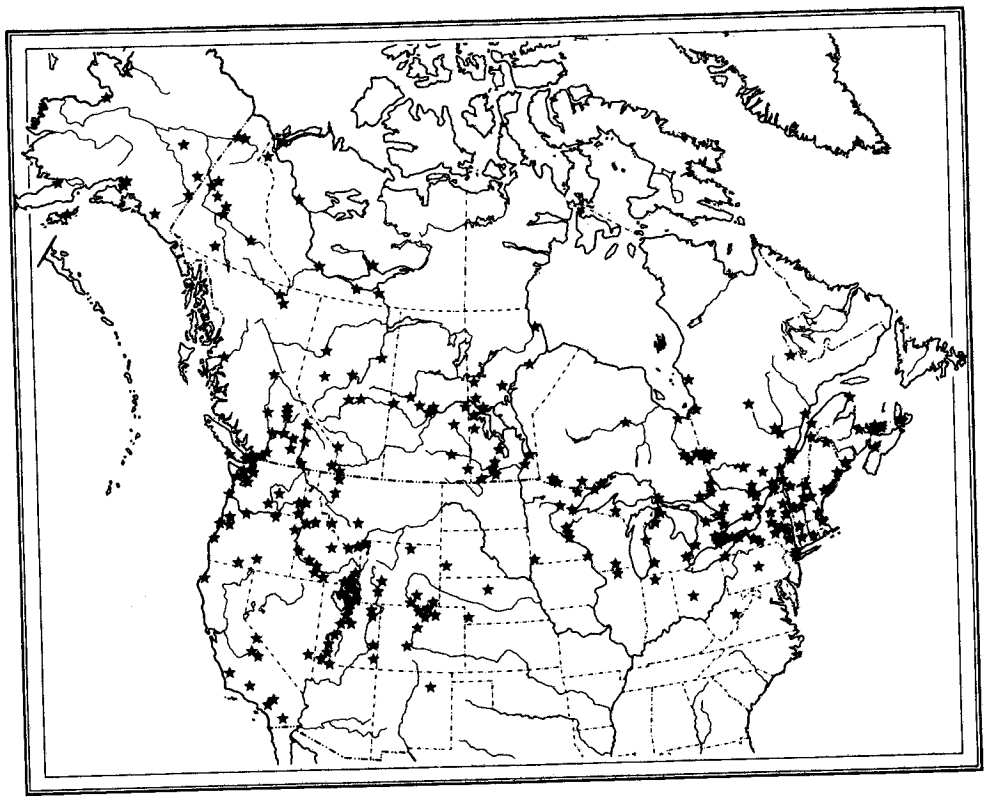
Platycheirus flabellus Hull

(Fig. 13; Map 10)

Platycheirus flabella Hull, 1944, p. 75.

Length 6.8–9.1 mm.

Male. Similar to that of *discimanus*, differing as follows: Face narrower, much more produced below, in profile as in *amplus* (Fig. 2), densely yellow-grey pruinose, with only tubercle shining. Thorax slightly more pruinose, with mixed black and white hairs. Knob of halter yellow to pale brown. Fore and mid tibiae sometimes slightly to extensively yellowish basally; mid tarsus black. Fore leg (Fig. 13*a*): trochanter ventrally with pale fine hairs or minute black setae or with both; femur on basal half with a nearly regular ventral row of about 6 stiff black setae, the longest slightly shorter than femoral diameter, on apical half with an anteroventral row of very short stiff black setae; tibia posteriorly over most of its length with an almost regular row of very weak black bristles, the longest almost 3 times as long as tibial diameter; 1st tarsomere broadened from base to apex, 1.5–2 times as long as broad; 2nd tarsomere rather variable, subquadrate or up to 1.5 times as wide as long, from ⅓ to ⅖ as long as 1st tarsomere. Mid leg: femur ventrally with a row of about 7 very slender white or black bristles most of which are slightly longer than femoral diameter, anteroventrally on apical quarter with rather dense long crinkly black hairs; tibia (Fig. 13*k*) with very short anterior hairs, posteroventrally on apical half with a series of about 5 very slender black bristles, the longest about 3 times as long as tibial diameter; tarsus not at all compressed, with yellow ventral setulae. Hind tibia anteriorly on apical half with about 6 very slender bristles of variable length, the longest about twice as long as tibial diameter. First tarsomere of hind leg only slightly swollen, about 5 times as long as greatest depth. Tergites with pruinose spots almost always with distinct orange-brown background, variable in size, those on tergite 2 usually smaller than others.



MAP 11. Distribution of *Platycheirus granditarsis* (Forster).

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: Mt. Rainier, WA. Holotype male in C.N.C.; examined by me.

Distribution. Alaska, northern and western Canada, south to Washington, Idaho, and Maine (Map 10). Y.T., VI–VII; Que., VII.

Specimens Examined. Alaska, 1 ♂; Canada, 37 ♂♂; U.S.A., 3 ♂♂.

Platycheirus granditarsis (Forster), comb.nov.
(Figs. 10, 11, 65, 66, 84; Map 11)

Musca granditarsa Forster, 1771, p. 99.
Syrphus granditarsa: Walker, 1849, p. 591.
Pyrophaena granditarsa: Verrall, 1901, p. 591.
Syrphus ocymi Fabricius, 1794, p. 309.
Syrphus (*Platycheirus*) *ocymi*: Macquart, 1834, p. 546.
Pyrophaena ocymi: Schiner, 1860, p. 213.
Pyrophaena granditarsis var. *apicauda* Curran, 1925, p. 115. **syn.nov.**
Pyrophaena digitalis Fluke, 1939, p. 367. **syn.nov.**

Length 7.7–10.5 mm.

Male. Face nearly vertical, with prominent tubercle, very slightly silver pruinose except on tubercle. Antenna black. Thorax shining to subshining, with white to yellow hairs. Wing membrane entirely trichose. Knob of halter yellow. Legs black with basal

third to fifth of fore and mid tibiae and basal fifth of hind tibia yellow. Fore leg (Fig. 10*a*): trochanter with a few short fine hairs below; femur with very short stiff black setae in an irregular anteroventral and an irregular posteroventral row on basal three-fifths; tibia rather stout on apical three-fifths but not at all depressed; 1st tarsomere with large triangular anterior process the apical half of which is strongly depressed; last 4 tarsomeres short and wide but only slightly depressed. Mid leg (Fig. 10*e*): femur posteroventrally with a group of short stiff black setae near base; tibia similar to fore tibia; first 4 tarsomeres strongly depressed, each with a broad apically rounded anterior process which is progressively shorter on the 1st to 3rd tarsomeres. First tarsomere of hind leg rather strongly swollen, about 4 times as long as its greatest depth. Abdomen (Fig. 65) rather broad, black with extensive yellow-orange areas as follows: tergite 2 except anterior third and narrow lateral margins, the anterior black area with triangular posteromedian extension which may extend as a black median line to posterior margin; tergite 3 except posterolateral angles; a basal band on about one-third of tergite 4, the band often emarginate posteriorly or divided into a pair of spots. Sternites black with posterolateral angles of 2, all of 3, and base of 4 yellow-orange. Surstylus (Fig. 84*b*) with poorly developed basal process. Paramere (Fig. 84*c*) subtriangular, with spine scarcely differentiated. Aedeagus as in Figure 84*d*.

Female. Frons shining except for 2 very small silver pruinose lateral spots at ⅔ its length; face broadly shining medially. Legs mostly yellow with following areas black or rarely brown: coxae, trochanters, fore tarsus, last 4 tarsomeres of mid tarsus, a small to large mark just beyond mid length of anterior surface of hind femur, a broad ring on about apical two-fifths to four-fifths of hind tibia, and hind tarsus. Femora without stiff setae. Fore tarsus (Fig. 11) moderately depressed; 1st tarsomere slightly widened toward apex, next 3 tarsomeres each wider than long, 5th tarsomere subquadrate. Mid tibia and mid and hind tarsi rather slender. Abdomen (Fig. 66) with yellow-orange markings similar to those of male; tergite 2 usually with narrow and obscure to broad and distinct posterior black band which may be strongly produced forward laterally; tergite 3 with similar posterior black band; tergite 5 with large triangular anterolateral yellow-orange spots. Sternites yellow-orange.

Type Specimens. *Musca granditarsa* Forster. Type locality: Europe. Location of type(s) unknown to me; presumably lost.

Syrphus ocymi Fabricus. Type locality: Germany. Type(s) lost (Zimsen 1964).

Pyrophaena granditarsis var. *apicauda* Curran. Type locality: San José, CA. Holotype male in U.S.N.M.; examined by me.

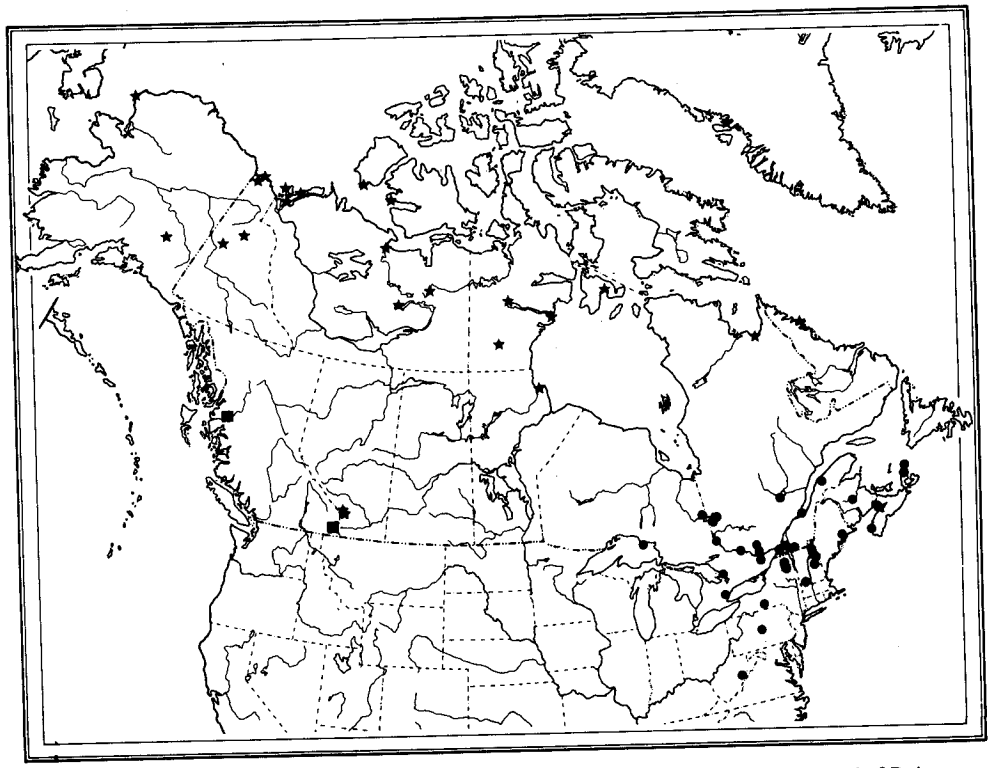
Pyrophaena digitalis Fluke. Type locality: Roggen, CO. Holotype female in A.M.N.H.; examined by me.

Distribution. Alaska, Canada, south to California, New Mexico, and West Virginia (Map 11); Europe; Siberia; Japan. B.C., VI–VIII; Ont., Que., V–VIII.

Specimens Examined. Alaska, 52 ♂♂, 56 ♀♀; Canada, 400 ♂♂, 249 ♀♀; U.S.A., 231 ♂♂, 224 ♀♀; Europe, 17 ♂♂, 18 ♀♀; Siberia, 2 ♂♂, 1 ♀; Japan, 2 ♂♂, 2 ♀♀.

Biology. Specimens were taken in Ontario and New Hampshire in *Carex* marsh.

Discussion. Some specimens from Utah and all of those in a long series from the Mojave Desert, California, have the abdomen more extensively yellow-orange than do other nearctic specimens. In both sexes tergites 3 and 4 have only a narrow posterior margin and sometimes the posterolateral angles black; the male has tergite 5 with a narrow black posterior margin; the female has tergite 5 entirely yellow-orange. The male has sternites 2–5 yellow-orange. Other males from Utah are intermediate in colour pattern, with tergite 5 with small to rather large sublateral pale spots. The male terminalia are as in the darker northern form. I consider these pale southwestern specimens (var. *apicauda* Curran) to be colour variants of *granditarsis*.



MAP 12. Distribution of *Platycheirus groenlandicus* Curran (★), of *P. hispidipes* sp.nov. (■), and of *P. inversus* Ide (●).

The holotype of *digitalis* is undoubtedly a sexually aberrant female of *granditarsis*. It has the frons very slightly narrowed, the fore and mid tarsi similar to those of the male but narrower, and the abdomen mostly blackish and truncate apically with the last few segments apparently broadened. It agrees very well with the brief description of two British intersexes of *granditarsis* given by Collin (1927).

Platycheirus groenlandicus Curran

(Fig. 14; Map 12)

Platycheirus groenlandicus Curran, 1927, p. 10.
Platycheirus monticolus Nielsen, 1972, p. 91 (preocc. Jones, 1917).
Platycheirus boreomontanus Nielsen, 1981, p. 101 (nom.nov. for *monticolus* Nielson, 1972). **syn.nov.**

Length 5.7–8.2 mm.

Male. Very similar to that of *discimanus*, differing as follows: Face a little more pruinose, with only tubercle shining. Thoracic hairs varying from almost entirely white to extensively black. Knob of halter dark brown. Fore and mid tibiae usually yellow on basal third, mid tarsus black. First tarsomere of fore leg from 1.25 to 1.5 times as long as wide (Fig. 14*a*). Mid tibia (Fig. 14*j*) with anteroventral hairs less abundant and posterior hairs rather variable in length and abundance. Mid tarsus (Fig. 14*j*) not at all compressed, usually with black ventral setulae. Spots of tergites sometimes with pruinosity greyish-brown rather than silvery. Sternites black, rather densely grey pruinose.

Female. Not distinguishable from those of several similar species.

Type Specimens. *Platycheirus groenlandicus* Curran. Type locality: Umanak, Greenland. Holotype male in A.M.N.H.; examined by me.

Platycheirus monticolus Nielsen. Type locality: Ustetind, western Buskerud, Norway. Holotype male in Zool. Mus., Univ. Bergen [not examined]. I have examined 2 male and 1 female paratypes.

Distribution. Alaska, northern and western Canada, Greenland (arctic and alpine only) (Map 12); northern Europe; Siberia*. N.W.T., VI, VII.

Specimens Examined. Alaska, 4 ♂♂; Canada, 115 ♂♂; Greenland, 1 ♂; Europe, 3 ♂♂.

Biology. Nielsen (1972) reported *monticola* at altitudes of 800–1200 m in Norway and Sweden in subalpine and particularly in alpine regions. At the type locality the species was rather common in a partly humid *Carex–Salix–Betula nana* community.

Discussion. I have compared two male paratypes of *monticolus* from Norway, plus a conspecific male from Finland, with many nearctic specimens of *groenlandicus*. There are slight differences between the European and many of the nearctic specimens but the latter show sufficient variation to indicate the populations should be treated as conspecific.

Platycheirus hesperius nom.nov.

(Fig. 57; Map 13)

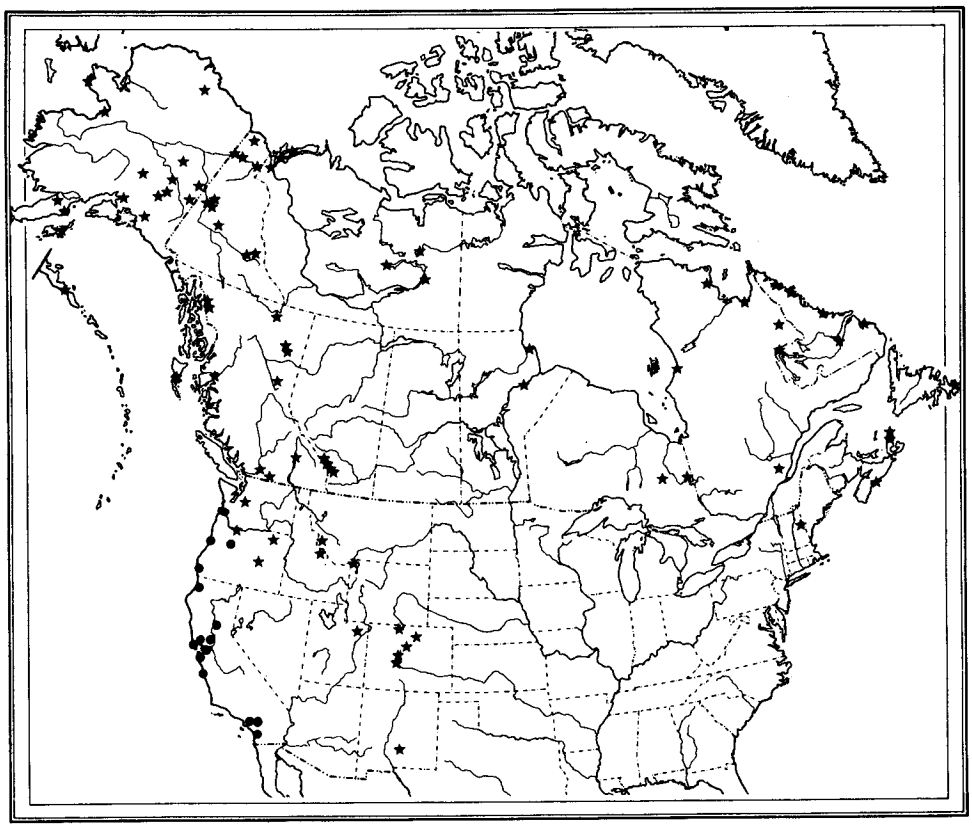
Melanostoma chaetopoda Davidson, 1922, p. 35 (preocc. Williston, 1887).
Carposcalis chaetopoda: Fluke, 1958, p. 265.

Length 5.7–7.9 mm.

Male. Face slightly produced forward below, broad, with low tubercle, with oblique rows of small indistinct punctures over most of its surface (similar to those in Fig. 1 but smaller), and with narrow well-defined shining median stripe extending from lower facial margin to slightly above tubercle. Antenna black with 1st flagellomere obscurely orange below at base. Scutum and scutellum nearly shining, with mostly black hairs; pleura nearly shining, with a few black hairs near upper margin, otherwise with white hairs. Wing with moderate bare areas; cell c bare on about basal sixth, cell bm bare on most of anterobasal half to two-thirds. Knob of halter blackish. Legs black with narrow femoral apices and fore and mid tibiae orange, with fore and mid tarsi orange-brown and with hind tibia blackish-brown. Femora with only fine hairs; fore tibia with a regular posterior row of about 7 strong black slightly curved bristles, the longest about ⅓ as long as tibia (Fig. 57); mid tibia with about 5 very weak black posterior bristles; tarsi unmodified; hind basitarsus moderately swollen, about 3.5 times as long as its greatest depth. Abdomen robust with shining metallic bluish or coppery spots, those on tergite 2 long and widely separated, those on tergite 3 widened laterally where they are about ⅘ as long as the tergite and narrowly separated medially, and those on tergite 4 similar but a little shorter and sometimes confluent medially.

Female. Frons lightly grey pruinose below and brown pruinose above, shining only anteriorly and above antenna. Thoracic hairs mostly pale, a few sublateral hairs on scutum and marginal hairs on scutellum black. Wing with cell c bare on at least basal half, sometimes almost entirely bare and with cell bm bare on anterobasal half to two-thirds. Knob of halter yellow. Fore and mid tibiae with several weak posterior white or black hairs about as long as tibial diameter, otherwise without distinctive hairs. Metallic spots of tergite 2 separated by only about ⅓ width of tergite.

Type Specimen. Type locality: Alhambra, CA. Holotype male in U.S.N.M.; examined by me.



MAP 13. Distribution of *Platycheirus holarcticus* nom.nov. (★) and of *P. hesperius* nom.nov. (●) (for Mexican localities of *hesperius* see text).

Distribution. Washington south to Mexico (D.F.) (Map 13). The Mexican localities (Mich., 21 mi. E Morelia, 7850′; 18 mi. S Mexico City) are not shown on the map. Oreg., Calif., II, IV, VI–X.

Specimens Examined. U.S.A., 35 ♂♂, 37 ♀♀; Mexico, 2 ♂♂.

Biology. Larvae were reared in the laboratory on three species of aphids and developed without diapause (Davidson 1922).

Platycheirus hispidipes sp.nov.
(Figs. 3, 39, 75; Map 12)

Length 8.7 mm.

Male. Face (Fig. 3) slightly protruding below, densely grey pruinose, with prominent slightly compressed shining tubercle. Antenna black with 1st flagellomere obscurely orange below at base. Scutum and scutellum shining, with mixed white and black hairs. Pleura moderately whitish pruinose, with fine hairs which are all white except for a few black hairs on upper posterior part of anepisternum. Wing rather extensively bare near base; cell bm bare on most of basal half. Knob of halter brown. Legs mostly brown to brownish-black with much of fore and mid femora and tibiae, 1st, 2nd, and 5th tarsomeres of fore leg and 1st tarsomere of mid leg dull yellow. Fore leg (Fig. 39*a*): trochanter with fine white hairs on ventral surface; femur posteriorly with subbasal tuft of 2 long white closely

appressed wavy hairs followed by a loose tuft of about 7 similar but shorter hairs and a row of 5 long moderately strong black hairs; tibia slightly broadened on basal two-thirds, more strongly broadened posteriorly on apical third, with strongly produced posteroapical angle, with short white hairs and 1 long white hair posteriorly on basal two-thirds; 1st tarsomere uniformly broadened from base to apex, twice as long as broad; 2nd and 3rd tarsomeres slightly narrower, subquadrate. Mid femur with a few weak black or pale anteroventral setae on apical half, posteriorly with long pale hairs and a few slightly shorter black hairs. Mid tibia (Fig. 39*k*) nearly cylindrical, with suberect hairs about ½ as long as tibial diameter on apical half of ventral surface, with 3 or 4 rather strong black hairs about 4 times as long as tibial diameter just beyond middle of dorsal surface. Hind femur with many long fine white hairs on anterior surface, the longest about 4 times as long as femoral diameter. Hind tibia with fine white subappressed anterodorsal hairs about as long as tibial diameter on most of its length, 4 of those on apical half about 3 times as long as tibial diameter. First tarsomere of hind leg scarcely swollen, about 5.5 times as long as its greatest depth. Abdomen (Fig. 75) slender; tergite 2 without pale spots but with anterior two-thirds of lateral margin submetallic; tergites 3 and 4 each with a pair of subtriangular, dull orange, partly densely silver pruinose sublateral spots on about anterior half. Tergite 5 submetallic, dark grey.

Female. Unknown.

Type Specimens. Holotype male: BRITISH COLUMBIA, 32 mi. SW Terrace, 50 ft., 11.VI.1960 (R. Pilfrey). C.N.C. Type No. 17272. Paratype male: BRITISH COLUMBIA, Michel, Main Wilson Creek, 5000 ft., 21.VIII. In Royal B.C. Mus.

Distribution. British Columbia (Map 12); VI, VIII.

Specimens Examined. Canada, 2 ♂♂.

Platycheirus holarcticus nom.nov.

(Figs. 20, 68; Map 13)

Scaeva rostrata Zetterstedt, 1838, p. 607 (preocc. Wiedemann, 1830).

Length 7.1–10.1 mm.

Male. Very similar to that of *amplus*, differing as follows: Face produced slightly more strongly forward below. Scutum and scutellum with hairs mostly black, with paler hairs yellow. Pleural hairs pale brown to black. Upper half of anepimeron with very dense upwardly directed tuft of dark brown to black crinkly hairs, with lower half bare. Longest hairs of lower part of katepisternum from ¼ to ½ as long as arista. Wing membrane entirely densely trichose. Knob of halter pale brown to dark brown. Fore trochanter with ventral black setae about ⅔ as long as basal diameter of femur. First tarsomere of fore leg (Fig. 20*b*) with strong dorsal keel over its whole length; 2nd tarsomere with distinct broad dorsal keel. Mid tibia with anteroventral tuft on basal half usually less dense and slightly shorter and often with few to many pale hairs. Anterior surface of hind tibia (Fig. 20*m*) with very dense, rather slender, curved black setae, those on basal third directed toward apex, those on apical two-thirds curved upward, the longest about ⅔ as long as tibial diameter. First tarsomere of hind leg (Fig. 20*m*) moderately swollen, tapering evenly to rather stout apex, about 4.5 times as long as its greatest depth. Abdomen as in Figure 68.

Female. Not distinguishable from those of several related species.

Type Specimen. Type locality: Lycksele, Sweden. Holotype male in Zoological Institute, Lund; examined by me.

Distribution. Alaska, northern and western Canada, south in mountains to Utah (3060 m), New Mexico (9700 ft.), Colorado (3000–3900 m), and New Hampshire (1650 m) (Map 13); northern Europe. B.C., VI–VIII: Que., VI–VIII.

Specimens Examined. Alaska, 34 ♂♂; Canada, 129 ♂♂; U.S.A., 45 ♂♂; Europe, 11 ♂♂.

Biology. Specimens were taken in Nova Scotia in a damp open sphagnum fen at 300 m. Males were very abundant flying over krummholz and on a nearly bare rocky peak (ca. 975 m) on a mountain near Queen Charlotte City, British Columbia (S.A. Marshall, personal communication).

Discussion. The original name of this species (*Scaeva rostrata* Zetterstedt) has been incorrectly synonymized with *Platycheirus peltatus* Meigen, 1822, by several European authors. I have seen many nearctic specimens but only 11 from the Palaearctic Region — the type, two males from Abisko, Torne Lpm., Sweden in the C.N.C., and eight males from Finland in the Univ. Zool. Mus., Helsinki. These two, plus *amplus* Curran and *nielseni* sp.nov., are the only palaearctic species known to me with dense flattened black hairs on the posterior surface of the fore femur and a distinct concavity on the anterior surface of the mid femur; in the Nearctic Region eight species (those in couplets 12–18 of the key) show this combination of characters. *Platycheirus holarcticus* has the 1st tarsomere of the fore leg with a strong dorsal keel on its entire length, the anepisternal hairs forming a very dense tuft with the bases of the hairs visible only along the lower margin of the hair tuft, the wing membrane entirely trichose, the mid tibia with scarcely perceptible appressed hairs on the ventral surface of the apical half, and the hind tibia with dense anterior setae which are almost as long on the basal third as on the apical two-thirds. *Platycheirus peltatus* has the 1st tarsomere of the fore leg with a distinct but low keel on only the apical half, the anepisternal hairs forming a less dense tuft with the hair bases visible throughout, cell c bare at extreme base and cell bm bare medially on about basal third, the mid tibia with erect hairs about ½ as long as tibial diameter on apical third of ventral surface and the hind tibia with sparse anterior setae which are much shorter on basal third than on apical two-thirds. *Platycheirus nielseni*, which occurs in boreal and montane areas of western Europe from northern Sweden to Italy (Map 21*b*) differs from *peltatus* only in having the apical eighth of the mid tibia strongly and abruptly swollen below and with rather long tangled black hairs at the base of the swelling (Fig. 25*l*). *Platycheirus peltatus* has the tibia much less swollen apically and has the hairs of the apical third of the ventral surface almost uniform in length. *Platycheirus amplus* differs from *peltatus* in having the anterior subbasal tuft of hair on the mid tibia more erect, longer and darker, and in lacking fine erect hairs on the underside of the apical third of the mid tibia.

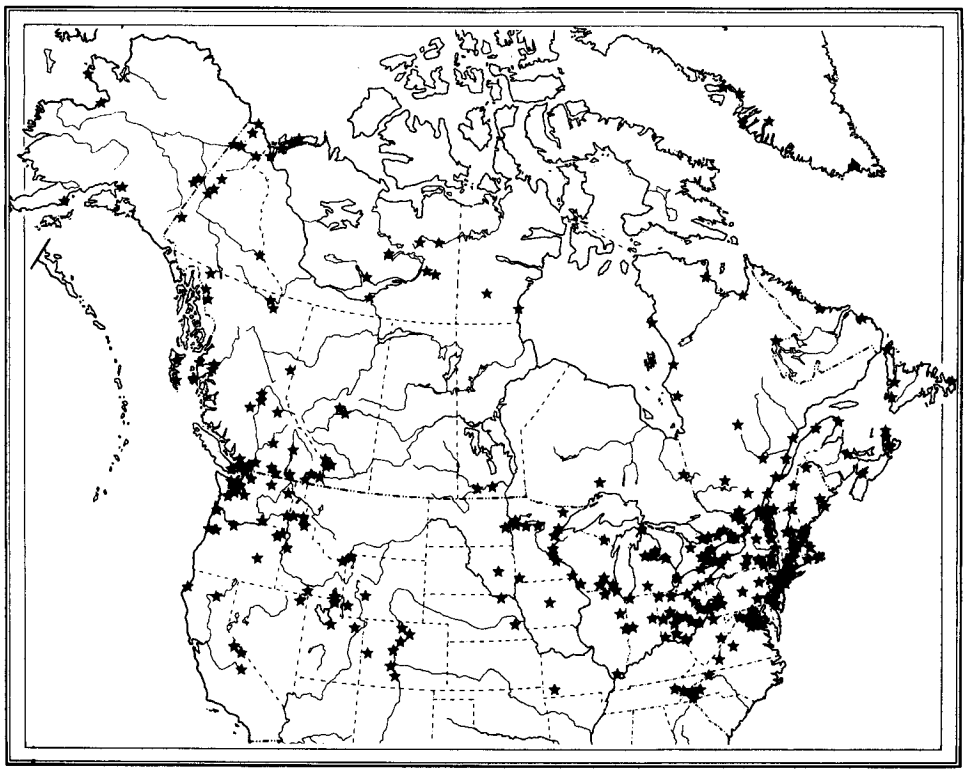
Platycheirus hyperboreus (Staeger)

(Fig. 40; Map 14)

Syrphus hyperboreus Staeger, 1845, p. 362.
Platycheirus hyperboreus: Williston, 1882, p. 309.
Platycheirus erraticus Curran, 1927, p. 7. **syn.nov.**
Platycheirus chirosphena Hull, 1944, p. 76. **syn.nov.**

Length 5.3–8.7 mm.

Male. Very similar to that of *angustatus*, differing as follows: First flagellomere extensively yellow below in southern specimens. Wing membrane entirely trichose or with small bare area at base of cells c and bm. Fore leg (Fig. 40*a*): femur with posterior hairs sometimes 1.5 times as long as femoral diameter; tibia scarcely produced posteroapically, the apex obliquely truncate; 1st tarsomere with anterior margin straight and posterior margin slightly but evenly rounded so margins are not parallel on apical half. Mid tibia with anteroventral hairs of basal half erect, with ventral hairs subappressed. Abdomen moderately robust; tergite 2 varying from slightly longer than wide to slightly wider than long; tergites 3 and 4 subquadrate or up to 1.33 times as wide as long. Spots of tergites very variable in colour; in most specimens taken at or near the northern limit of trees the spots



MAP 14. Distribution of *Platycheirus hyperboreus* (Staeger).

grey or with only a trace of yellow colour and those of tergite 2 often very small or absent, in some northern specimens and in all those taken 100 km or more south of the limit of trees or well below treeline in the western mountains, the spots greyish-yellow or yellow-orange, in all specimens the spots of tergite 4 almost entirely densely silver pruinose and those of tergite 3 densely silver pruinose on about anteromedian half. Spots of tergite 2 usually small, subcircular, restricted to posterior half of tergite, sometimes indistinct or absent; spots of tergite 3 from ½ to ⅔ as long as tergite, extending broadly to anterior margin and usually to lateral margin, sometimes scarcely distinguishable in northern specimens; spots of tergite 4 similar but scarcely more than ½ as long as tergite.

Female. Not distinguishable from those of several similar species.

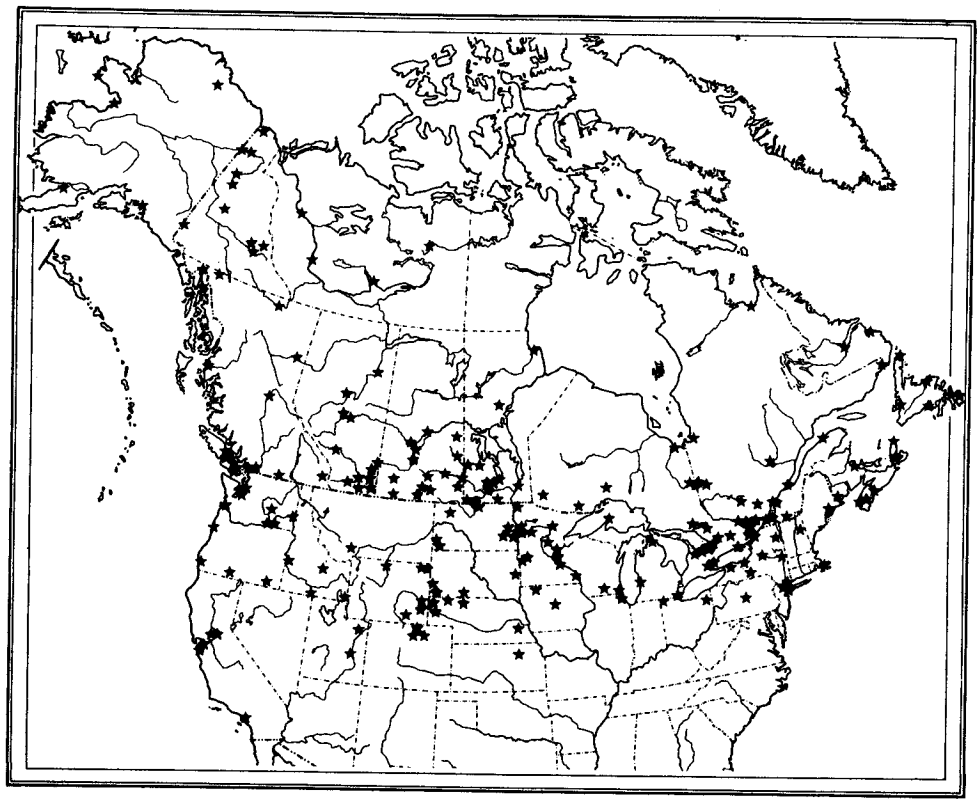
Type Specimens. *Syrphus hyperboreus* Staeger. Type locality: Greenland. Syntypes presumably in Zoological Museum, Copenhagen.

Platycheirus erraticus Curran. Type locality: Orillia, Ont. Holotype male in C.N.C.; examined by me.

Platycheirus chirosphena Hull. Type locality: Oliver, B.C. Holotype male in C.N.C.; examined by me.

Distribution. Alaska, Canada, Greenland, south to California, Colorado, and North Carolina (Map 14); northern Europe; Siberia. B.C., IV–VIII; Ont., Que., V–IX.

Specimens Examined. Alaska, 21 ♂♂; Canada, 403 ♂♂; Greenland, 29 ♂♂; U.S.A., 585 ♂♂; Europe, 7 ♂♂; Siberia, 1 ♂.



MAP 15. Distribution of *Platycheirus immarginatus* (Zetterstedt).

Biology. Fluke (1929) reported larvae as important predators of *Macrosiphum pisi* on peas and alfalfa in Wisconsin. Adults were collected in Nova Scotia in *Carex* marsh.

Platycheirus immarginatus (Zetterstedt)

(Fig. 41; Map 15)

Scaeva immarginata Zetterstedt, 1849, p. 3149.
Platycheirus immarginatus: Schiner, 1861, p. 296.
Platycheirus palmulosus Snow, 1895, p. 231. **syn.nov.**
Platycheirus felix Curran, 1931, p. 251. **syn.nov.**

Length 6.5–9.6 mm.

Male. Face vertical with small shining tubercle, otherwise moderately grey to greyish-brown pruinose. Antenna black. Scutum shining, slightly pruinose laterally, usually with only pale hairs but sometimes with some black hairs. Scutellum shining, with pale hairs. Pleura with yellowish-brown pruinosity above and greyish pruinosity below, with hairs usually entirely pale but sometimes partly brown to black on upper half and stiff and black on lower part of katepisterum; upper part of katepisterum without hairs or with up to 8 hairs; hairs of posterior part of anepisternum moderately dense and crinkly, a vertical submarginal row often stronger and almost bristle-like. Wing membrane entirely trichose. Knob of halter yellow. Legs usually mostly yellow with coxae and trochanters black and 1st, 4th, and 5th tarsomeres of hind leg brown to dark brown above, sometimes fore and mid femora each with brown posterior stripe and hind femur and tibia each with brown

ring on middle half; rarely hind femur and tibia dark brown except for narrow bases and apices. Fore leg (Fig. 41*a*): trochanter with many short stiff yellow setae on ventral surface; femur posteriorly with subbasal tuft of about 3 very closely appressed long wavy white hairs followed by a nearly regular row of 4 or 5 long slender bristles with wavy tips, of which at least the last 3 are black and the longest of which is about twice as long as femoral diameter; tibia almost uniformly broadened from base almost to apex, the posteroapical angle subtriangular and bluntly rounded; 1st tarsomere with posterior margin oblique and anterior margin straight, about ½ as wide as long and slightly narrower than tibia; 2nd tarsomere subrectangular, slightly wider than long and slightly narrower than 1st tarsomere. Mid femur (Fig. 41*i*) anteroventrally on apical two-thirds with a nearly regular single or sometimes partly double row of 10–22 short stiff acute black setae and usually with 1 or 2 long slender strongly curved black hairs just before or just beyond end of row, ventrally on basal half with a row of 3–6 variable but usually strong yellow or rarely black bristle-like hairs the longest of which is about twice as long as femoral diameter, posteriorly and posteroventrally on apical half with few to many scattered short stiff yellow or black setae. Mid tibia slightly broadened on apical three-fifths, anteroventrally usually with short but distinct crinkly yellow hairs on most of its length, posteroventrally usually with a few similar yellow or dark hairs near mid length. First tarsomere of hind leg rather strongly swollen, about 3.33 times as long as its greatest depth. Abdomen mostly yellow (as in Fig. 80 but with black areas slightly more extensive); tergite 2 with narrow median line which is strongly broadened anteriorly, and very narrow posterior margin, brownish-black to black; tergites 3 and 4 similar to 2 but with median dark line narrower and narrowed or sometimes indistinct anteriorly; tergite 5 yellow with small posteromedian black triangle which may not reach anterior margin; rarely in northern specimens yellow spots reduced, those of tergite 2 not reaching to anterior or lateral margins or small and rounded or even absent, those of tergites 3 and 4 not reaching anterior and lateral margins and separated by a black median line which is about ⅓ as wide as tergite, and those of tergite 5 broadly separated or small and obscure.

Female. Not distinguishable from those of several similar species.

Type Specimens. *Scaeva immarginata* Zetterstedt. Type locality: Scandinavia. Syntypes presumably in Zoological Institute, Lund.

Platycheirus palmulosus Snow. Type locality: Colorado Springs, CO. Holotype male in Snow Mus. Ent., Univ. Kans, Lawrence; examined by me.

Platycheirus felix Curran. Type locality: Bonne Esperance, Que. Holotype male in C.N.C.; examined by me.

Distribution. Alaska, Canada, south to southern California, Kansas, and New York (Map 15); Europe; Siberia. B.C., V, VI; Ont., Que., V–VIII.

Specimens Examined. Alaska, 42 ♂♂; Canada, 306 ♂♂; U.S.A., 193 ♂♂; Europe, 4 ♂♂; Siberia, 1 ♂.

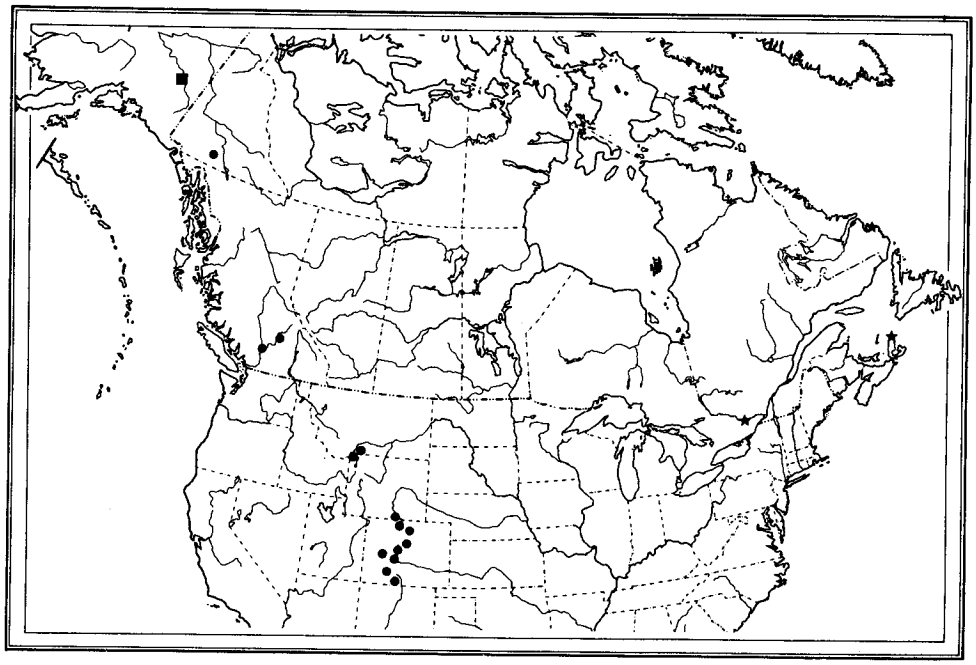
Biology. Goeldlin (1974) reared larvae on *Aphis fabae* in the laboratory in Switzerland and observed that they had a facultative diapause. Adults were collected in Quebec and Nova Scotia in *Carex* marsh.

Platycheirus inversus Ide
(Fig. 21; Map 12)

Platycheirus inversus Ide, 1926, p. 156.

Length 8.7–9.6 mm.

Male. Very similar to that of *amplus*, differing as follows: Anepimeron sometimes with hairs restricted to upper half to two-thirds. Wing membrane more extensively bare: cell bm with bare area usually at least ½ as long as cell and reaching both anterior and



MAP 16. Distribution of *Platycheirus jaerensis* Nielsen (★), of *P. kelloggi* (Snow) (●), and of *P. manicatus* (Meigen) (■).

posterior margins, cell cu*p* with bare area almost as long as anterior margin of cell and extending from Cu*P* to A_1. Hind tarsus with 1st tarsomere (Fig. 21*m, p*) strongly swollen on basal half, abruptly narrowed at mid length, and then tapering only very slightly to apex.

Female. Not distinguishable from those of several related species.

Type Specimen. Type locality: Hull, Que. Holotype male in C.N.C.; examined by me.

Distribution. Eastern Canada, south to West Virginia and New Hampshire (Map 12). Ont., Que., V–VII.

Specimens Examined. Canada, 30 ♂♂; U.S.A., 24 ♂♂.

Biology. One male was taken in Nova Scotia in dry mixed forest.

Discussion. This form may not be specifically distinct from *amplus* but the constant difference in wing microtrichia and shape of the 1st tarsomere of the hind leg, the marked difference in distribution (Maps 3, 12), plus the distinctness of the specimen of each form taken at the same locality (Low Bush, L. Abitibi, Ontario) suggest that two species are involved.

Platycheirus jaerensis Nielsen
(Figs. 22, 78; Map 16)

Platycheirus jaerensis Nielsen, 1971, p. 57.

Length 9.2–10.1 mm.

Male. Head as in Figure 5 but with tubercle slightly less prominent. Antenna dark orange, with upper margin of pedicel and of 1st flagellomere brownish-black. Scutum, scutellum, and pleura subshining with yellow hairs. Lower katepisternal hairs fine, about 3/5 as long as arista. Wing with small bare areas near base; most of basal third of cell bm

bare. Knob of halter yellow to brown. Legs mostly dark yellow-orange; coxae black; trochanters, about basal third of fore and mid femora, hind femur except narrow apex, most of hind tibia, and all of hind tarsus brown to blackish-brown. Fore leg (Fig. 22): trochanter with rather long stiff black setae on entire ventral surface; femur without distinctive hairs or bristles, posteriorly with dense fine black hairs the longest of which are a little shorter than femoral diameter; tibia scarcely depressed, slightly and uniformly broadened from base almost to apex, slightly more strongly broadened on apical quarter; 1st tarsomere about twice as long as wide, very slightly wider than tibia, with obscure dorsal keel and with oblique apex; 2nd tarsomere about ⅔ as wide and ⅗ as long as 1st tarsomere. Mid femur with shallow concavity at middle of anterior surface (similar to that of *amplus* [Fig. 19*e*] but less well developed) preceded and bordered below by short strong straight or slightly curved black setae, and followed by short soft black upcurved hairs. Mid tibia very slightly arcuate, otherwise scarcely modified, on basal half with an anteroventral tuft of black or partly pale erect or subappressed hairs the longest of which is twice as long as tibial diameter. First tarsomere of hind leg scarcely swollen, about 5 times as long as its greatest depth. Abdomen (Fig. 78): tergite 2 with rather large semicircular dull yellow spots with straight posterior margins; tergites 3 and 4 each with very large subquadrate dull yellow spots which lie on anterior margin but are well separated from other margins; tergite 5 dull yellow with black median triangle. Sternite 1 black, other sternites dark yellow.

Female. Probably not distinguishable from those of several similar species.

Type Specimen. Type locality: Brattebö, outer Rogaland, Norway. Holotype male in Zool. Mus., Univ. Bergen (not examined). I have examined one male from Norway identified by Nielsen.

Distribution. Eastern Canada (Map 16); northern Europe. Que., V.

Specimens Examined. Canada, 3 ♂♂; Europe, 1♂.

Biology. "The holotype (and allotype) [of *jaerensis*] was collected on a meadow (*Taraxacum*, *Ranunculus*, *Gramineae*) at the edge of a spruce and pine forest. . ." (Nielsen 1971). The specimen from Nova Scotia was taken in damp mixed woodland.

Platycheirus kelloggi (Snow), comb.nov.

(Fig. 55; Map 16)

Melanostoma kelloggi Snow, 1895, p. 230.
Carposcalis kelloggi: Wirth *et al.*, 1965, p. 576.
Melanostoma johnsoni Jones, 1917, p. 220. **syn.nov.**

Length 7.7–10.1 mm.

Male. Face strongly produced throughout, more than ½ as wide as head, with small subshining tubercle, otherwise lightly dark grey pruinose, sometimes with very faint median groove near upper end. Frons large, with dense rather long hairs, the eyes meeting at an angle of about 110°. Antenna black with 1st flagellomere orange below. Scutum and scutellum subshining, with long white or yellowish hairs, the longest scutellar hairs a little longer than arista. Pleura very slightly pruinose, with long white or yellowish hairs. Wing extensively bare; cell c bare on basal third to three-quarters, cell bm bare except at apex and along about apical half of posterior margin. Knob of halter yellow. Legs with coxae and trochanters black; fore femur orange with blackish posterior stripe and sometimes with up to basal half of anterior surface black, mid femur orange with posterior surface narrowly black at base or with up to basal half black, hind femur usually black with about apical quarter orange but sometimes with orange-brown stripe on entire posteroventral surface; fore and mid tibia orange with apical quarter sometimes slightly brownish, hind tibia orange at base becoming black toward apex; fore and mid tarsus dark brown to black above

with 5th tarsomere usually orange, hind tarsus black. Fore leg (Fig. 55): femur posteriorly with long fine dense mostly pale hairs which become slightly shorter toward apex and are followed by 2 or 3 longer and stronger black hairs with strongly curved apices, ventrally near base with a row of 3 or 4 moderately strong straight yellow or black hairs which are slightly longer than femoral diameter; tibia posteriorly with many fine pale hairs which are up to twice as long as tibial diameter; tarsus simple, with very short hairs. Mid femur anteroventrally with strong stiff white or black hairs which near base are almost as long as femoral diameter and in 2 irregular rows, and which become shorter toward apex of femur where they appear as short fine setulae, posteroventrally near base with a row of about 4 long strong black hairs, posteriorly with long dense fine hairs; mid tibia and tarsus with short hairs. Hind femur anteriorly with long fine hairs; hind tibia with fine pale anterodorsal hairs which are up to twice as long as tibial diameter; 1st tarsomere of hind leg moderately swollen, about 3.5 times as long as its greatest depth. Abdomen robust, with unusually long hairs; tergites 2–4 with large subshining silvery-grey pruinose spots which are widely removed from lateral margins, those on tergite 2 near middle of sclerite, those on tergites 3 and 4 reaching anterior margins, spots of all tergites usually with at least inner end and often with entire surface with dull orange background; tergite 5 black, subshining.

Female. Face with tubercle strongly shining, with pruinosity less uniform than in male. Frons shining with narrow pruinose margin on lower half which extends triangularly inward at mid length so that from one-third to one-half of middle of frons is shining. Thoracic hairs shorter than in male but much longer than in related species. Cell c bare or trichose on at most apical third; cell bm with at most a few microtrichia near apex. Femora and fore and mid tibiae entirely orange; hind tibia orange with up to apical half brown to black; tarsal colour as in male. Abdomen broadly oval; markings similar to those of male but those of tergites 3 and 4 and often those of tergite 2 entirely bright orange and clearly defined; those of tergite 2 subtriangular, those of 3 and 4 subquadrate.

Type Specimens. *Melanostoma kelloggi* Snow. Type locality: Windy Gulch, Front Range, nr. Estes Park, CO. Holotype male in Snow Mus. Ent., Univ. Kansas, Lawrence; examined by me.

Melanostoma johnsoni Jones. Type locality: Denver, CO. One female syntype in U.S.N.M. was examined. It is labelled "Denver, 453 IV 18.02 Col.", "Loan S.A.J.", "Lectotype Melanostoma johnsoni Jones Desig. Thompson 1976", and "Melanostoma Johnsoni Type. Jones."; it is here designated as lectotype and has been so labelled.

Distribution. Western Canada, south to Colorado (2900–3900 m) (Map 16). B.C., VII; CO, VI–VIII.

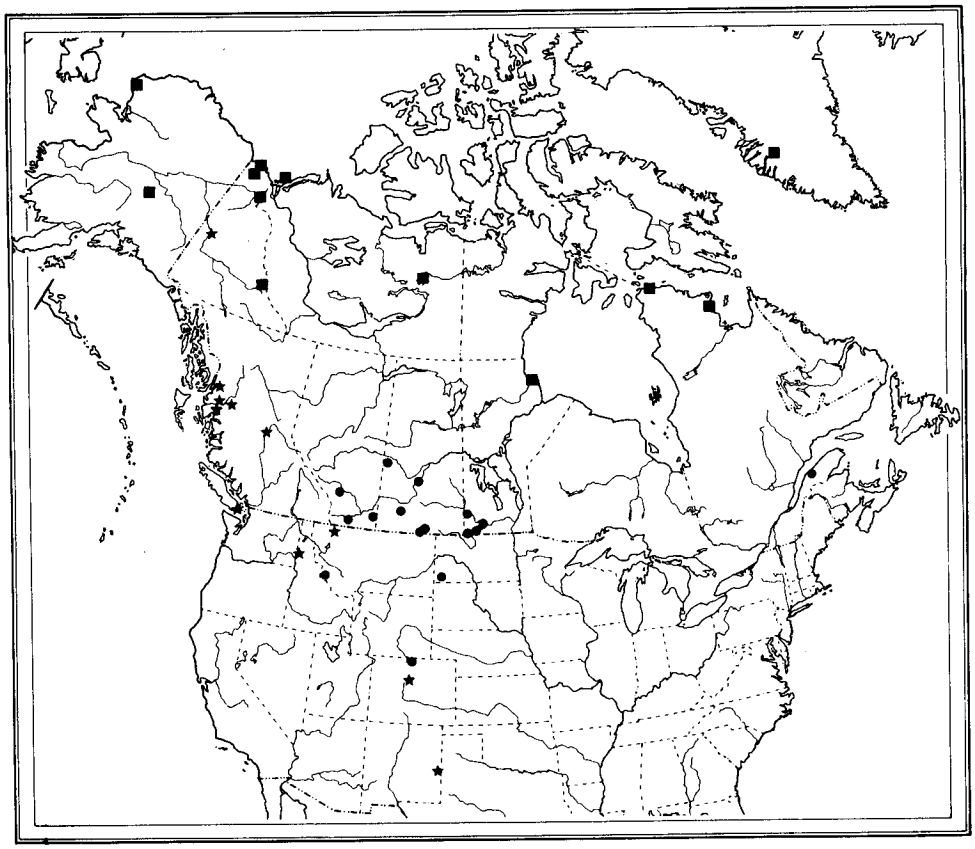
Specimens Examined. Canada, 2 ♂♂, 3 ♀♀; U.S.A., 8 ♂♂, 77 ♀♀.

Platycheirus latitarsis sp.nov.

(Fig. 23; Map 17)

Length 7.7–8.8 mm.

Male. Very similar to that of *amplus*, differing as follows: Scutal and scutellar hairs mixed dull yellow and black. Pleural hairs whitish to dull yellow or brown, those on posterior margin of anepisternum sometimes blackish. Anepimeron with hairs not forming dense tuft, extending almost to lower margin. Hairs of lower part of anepisternum at least ⅔ as long as arista. Fore leg (Fig. 23*b*): trochanter with ventral black setae about ½ as long as basal femoral diameter; 1st tarsomere a little less than twice as long as wide, without dorsal keel; 2nd tarsomere about 1.66 times as wide as long, about 9/10 as wide as 1st tarsomere and slightly wider than widest part of fore tibia. Mid tibia with anteroventral tuft of basal half sparse, sometimes partly pale and subappressed, the longest hairs subequal to tibial diameter, and with very short subappressed hairs on apical third of ventral



MAP 17. Distribution of *Platycheirus latitarsis* sp.nov. (★), of *P. lundbecki* (Collin) (■), and of *P. luteipennis* (Curran) (●). (Note: For *P. luteipennis* (Curran), a ● should also appear to mark Pullman, WA.)

surface. Anterior surface of hind tibia (Fig. 23*n*) with more abundant and longer black setae, the longest about ¾ as long as tibial diameter. First tarsomere of hind leg less strongly swollen, tapering only slightly to apex.

Female. Probably indistinguishable from those of several similar species.

Type Specimens. Holotype male: BRITISH COLUMBIA, Kitsequetla R., 76 mi. E Terrace, 673 ft., 16.VII.1960 (C.H. Mann). C.N.C. Type No. 17273. Paratypes (12 males): YUKON TERRITORY: Dawson. BRITISH COLUMBIA: Aiyansh, Nass R., 500 ft.; Spring Creek, Terrace, 220 ft.; 32 mi. SW Terrace, 100 ft.; Hixon; Goldstream Park, Vancouver I. IDAHO: Laird Park, Latah Co. MONTANA: Avalanche Cpgrd., Glacier Co. COLORADO: Geneva Park, Grant, 10 000 ft. NEW MEXICO: 4 mi. NW Portales. In C.N.C.; Dayton Mus.; Fla. St. Coll. Arthr.; U.S.N.M.; Univ. Idaho; coll. T. Nielsen, Sandnes.

Distribution. Western Canada, south to New Mexico (Map 17). B.C., VI–VII.

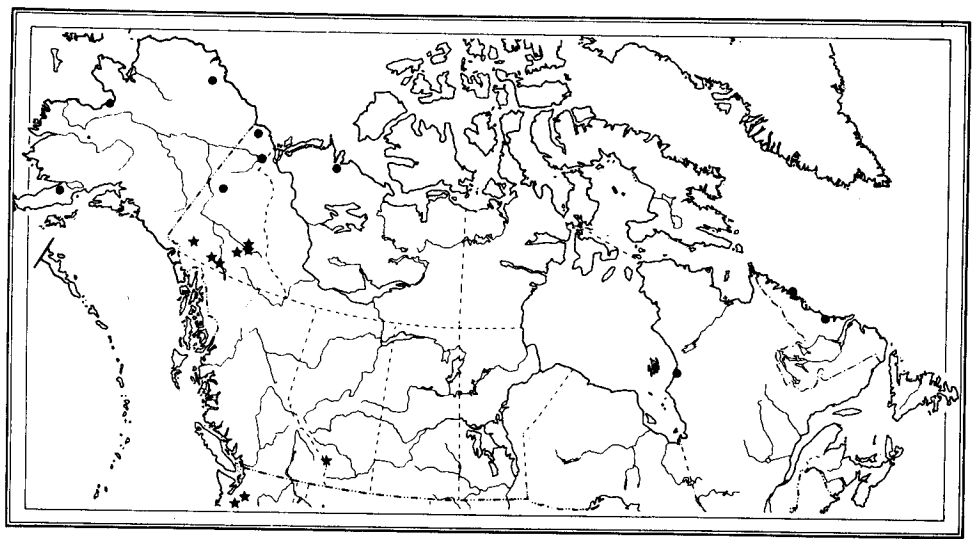
Specimens Examined. Canada, 9 ♂♂; U.S.A., 4 ♂♂.

Platycheirus latus (Curran), comb.nov.

(Fig. 91; Map 18)

Melanostoma lata Curran, 1922, p. 276.

Length 8.7–10.0 mm.



MAP 18. Distribution of *Platycheirus latus* (Curran) (★) and of *P. nigrofemoratus* Kanervo (●).

Male. Very similar to that of *concinnus*, differing as follows: Antenna black. Thorax without bluish tint; scutum and scutellum with hairs mostly brown to black, only a few yellow-brown. Pleura with hairs near upper margin brown to black, other hairs mostly yellowish. Wing with cell c bare at extreme base and with cell bm narrowly bare posteriorly over most of its length. Legs black with narrow apices of femora and bases of tibiae orange-brown. Markings of tergites with greyish-green rather than bluish tint. Surstylus (Fig. 91*b*) with extremely small basal lobe, the main arm distinctly narrower at mid length than at base and apex. Paramere (Fig. 91*c*) with stout base and closely appressed spine. Aedeagus (Fig. 91*d*) short, stout.

Female. Very similar to that of *concinnus*, differing as follows: Pruinose spots of frons less distinct, extending only slightly inward. Antenna with only 1st flagellomere obscurely orange below. Scutum with many black hairs sublaterally; scutellum with mixed black and white hairs. Wing with cell c bare on about basal sixth, with cell bm narrowly bare at base and along most of anterior and posterior margins. Legs black with narrow apices of femora and up to basal third of tibiae orange.

Type Specimen. Type locality: Whitehorse, Yukon Territory. Holotype female in C.N.C.; examined by me.

Distribution. Yukon Territory, Alberta, Washington (Map 18). Y.T., VI, VII.

Specimens Examined. Canada, 6 ♂♂, 11 ♀♀; U.S.A., 3 ♂♂.

Discussion. The female holotype cannot be associated with certainty with the males or the other females referred here but because of distribution, the partly dark scutal hairs, and the occurrence together of such females and males at two Yukon localities it seems very likely that all these specimens are conspecific.

Platycheirus lundbecki (Collin), comb.nov.

(Map 17)

Melanostoma lundbecki Collin, 1931, p. 68.
Platycheirus fjellbergi Nielsen, 1974, p. 167. **syn.nov.**

Length 5.3–6.5 mm.

Male. Very similar to that of *coerulescens*, differing as follows: Thorax sometimes with few or many brown to black hairs. Wing membrane almost entirely trichose, with at most rather obscure bare areas at base of cell c and on anterobasal part of cell bm. Legs much darker, with only base of fore femur, apices of all femora and bases of all tibiae obscurely yellow-orange. Fore leg: femur with posterior bristles slightly weaker, especially on basal half, and with ventral bristles almost all black; tibia with posterior hairs black, shorter, often subappressed and inconspicuous. Mid femur with anteroventral subbasal bristles black, often in an irregular double row. Mid tibia with posterior hairs black, less conspicuous. First tarsomere of hind leg a little more swollen, about 3.5 times as long as its greatest depth. Abdomen with pale spots with subshining metallic greyish or coppery background and dense silver-grey pruinosity.

Female. Not distinguishable from those of several similar species.

Type Specimens. *Melanostoma lundbecki* Collin. Type locality: Sermiliarsuk, Greenland. Types in Zoological Museum, Copenhagen, and Hope Museum, Oxford.

Platycheirus fjellbergi Nielsen. Type locality: Spiterstulen, northern Opland, Norway (1100 m). Holotype male in coll. T. Nielsen, Sandnes, Norway. I have examined 2 male and 2 female paratypes.

Distribution. Alaska, northern Canada, Greenland (arctic and alpine only) (Map 17); northern Europe; Siberia*. Que., VI–VIII.

Specimens Examined. Alaska, 4 ♂♂; Canada, 26 ♂♂; Greenland, 17 ♂♂; Europe, 2 ♂♂.

Discussion. A series of males from Peary Land, northern Greenland, are more-or-less intermediate between specimens of *lundbecki* and of *coerulescens*. The legs are paler than in *lundbecki*, with the fore femur dark only posteriorly and the fore and mid tibiae broadly pale basally; the posterior bristles of the fore femur are as in *lundbecki* but the ventral bristles of the fore and mid femora and the long posterior hairs of the fore and mid tibiae are pale as in *coerulescens*. The 1st tarsomere of the hind leg is strongly swollen, about 3 times as long as its greatest depth. The wing microtrichia are rather variable, about intermediate between those of the two species. The pale abdominal spots are similar to those of *lundbecki*. These specimens possibly represent a distinct species or, more probably, a variant population of *lundbecki*.

Platycheirus luteipennis (Curran), comb.nov.

(Fig. 93; Map 17)

Melanostoma luteipennis Curran, 1925, p. 114.
Carposcalis luteipennis: Wirth *et al.*, 1965, p. 576.
Melanostoma agens Curran, 1931, p. 253. **syn.nov.**

Length 8.7–10.1 mm.

Male. Face produced strongly forward below (as in Fig. 5), sparsely greyish pruinose with poorly defined shining median stripe from upper end of tubercle to lower facial margin, with tubercle rather large but not abrupt above, on upper part with a weak median keel flanked on each side by an upwardly convergent groove. Antenna black with 1st flagellomere orange below. Scutum and scutellum strongly shining, slightly brassy, with short brassy yellow hairs, the longest scutellar hairs not more than ½ as long as arista. Pleura mostly shining, with short yellow to yellow-brown hairs. Wing with cell c bare on about basal sixth, with cell bm bare posteriorly on about basal half, and with cell cu*p* broadly bare on basal third. Knob of halter orange. Legs mostly orange-brown, with fore and hind coxae, basal third to half of mid femora, hind femur except apex, usually a preapical ring on each tibia, and upper surface of hind tarsus blackish-brown to black. Legs simple, without outstanding hairs or bristles; hairs of femora much shorter than

femoral diameter. First tarsomere of hind leg slightly swollen, about 4 times as long as its greatest depth. Abdomen moderately slender; tergites opaque black with shining lateral margins, tergites 2–4 each with a pair of large sublateral coppery or slightly pollinose spots, those on tergite 2 near middle of segment and broadly separated medially, those on tergite 3 near anterior margin and narrowly separated, those of tergite 4 on anterior margin and poorly defined, sometimes appearing to cover most of tergite. Tergite 5 shining, coppery. Surstylus (Fig. 93*b*) with slender subtriangular basal thumb-like lobe. Paramere (Fig. 93*c*) slender, with spine widely separated from base. Aedeagus (Fig. 93*d*) short, stout.

Female. Face with keel and grooves of upper part weaker but distinct. Frons shining with narrow elongate pruinose spot on each side of lower half. Thoracic hairs much shorter than in male. Wing with cell c bare on about basal half and cell bm mostly bare with only anterior margin and about apical quarter trichose. Spots of tergites usually less distinct than in male so abdomen appears nearly uniformly coppery.

Type Specimens. *Melanostoma luteipennis* Curran. Type locality: Pullman, WA. Holotype female in U.S.N.M.; examined by me.

Melanostoma agens Curran. Type locality: Melita, Man. Holotype male in C.N.C.; examined by me.

Distribution. Central Canada, Quebec, south to Washington, Montana, Colorado, and North Dakota (Map 17). Alta., Sask., VI–VIII.

Specimens Examined. Canada, 17 ♂♂, 6 ♀♀; U.S.A., 3 ♂♂, 1 ♀.

Discussion. Although the holotype of *luteipennis* is a female and cannot be identified with certainty it agrees very well with female paratypes of *agens* taken at the same time as males of *agens* and is almost certainly conspecific with them.

Platycheirus manicatus (Meigen)

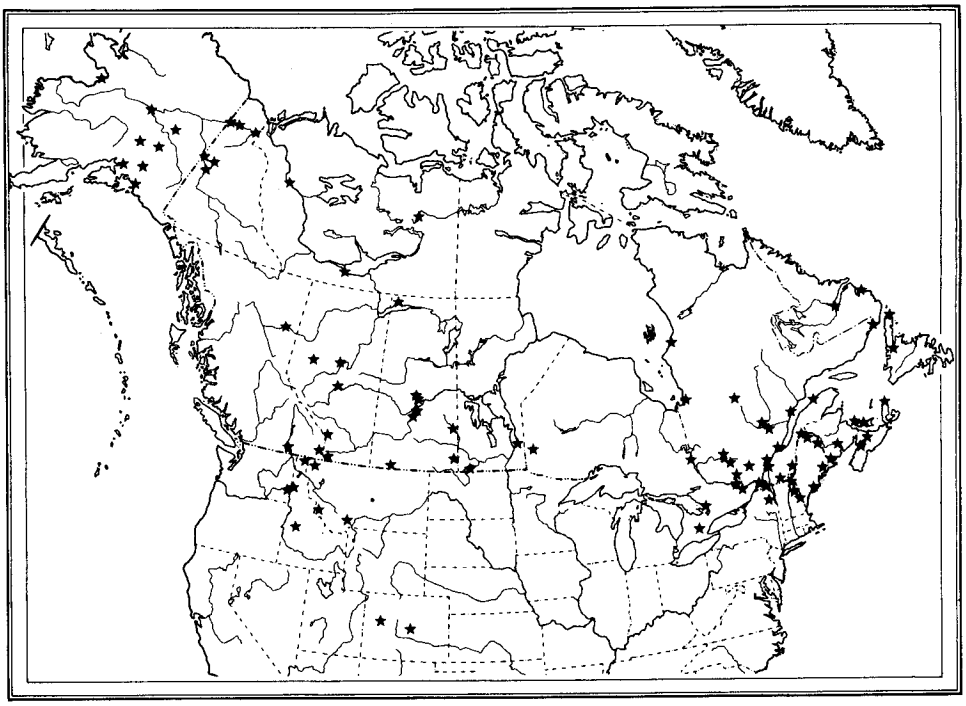
(Fig. 15; Map 16)

Syrphus manicatus Meigen, 1822, p. 336.
Syrphus (*Platycheirus*) *manicatus*: Macquart, 1834, p. 548.
Platycheirus manicatus: Rondani, 1857, p. 120.

Length 7.9–10.1 mm.

Male. Similar to that of *discimanus*, differing as follows: Face produced very strongly forward below, with lower facial margin extending beyond tubercle, with keel and grooves above tubercle sometimes obscure, moderately grey pruinose with only tubercle shining. Scutum and scutellum subshining, with distinct olivaceous pruinosity and mixed black and white hairs; pleura rather densely grey pruinose, with white to pale brown hairs. Basal third of fore and mid tibiae yellow, mid tarsus dark brown. Fore leg (Fig. 15*a*): tibia with longer posterior hairs only on apical half; 1st tarsomere slightly longer than wide with curved lateral margins and very oblique apex, almost 2.5 times as wide as apex of fore tibia; 2nd tarsomere almost as wide as 1st, with posterior margin about 1.5 times as long as anterior margin. Mid tibia (Fig. 15*k*) with long rather sparse posterodorsal and posterior hairs on apical half, the longest about 3.5 times as long as tibial diameter. First tarsomere of hind leg strongly swollen, about 5 times as long as deep. Tergites 2–4 each with a pair of large elongate subrectangular yellow spots; tergite 5 sometimes with small obscure anterolateral yellow spots. (Description based on 1 male from Alaska and several from Europe.)

Female. Face similar to that of male, with lower facial margin produced well beyond tubercle. Frons grey pruinose, shining only immediately above antennae and subshining on ocellar triangle. Scutum weakly but distinctly pruinose, more strongly pruinose laterally, especially on notopleuron. Anterior part of anepimeron haired throughout. Fore tarsus black, legs otherwise coloured as in male. Yellow spots of tergites 3 and 4 slightly wider than long. (Description based on several females from Europe.)



MAP 19. Distribution of *Platycheirus modestus* Ide.

Type Specimens. Type locality: Europe (Aachen?). Type(s) presumably in M.N.H.N., Paris.

Distribution. Alaska (Map 16); Europe; Siberia. Alaska, VI.

Specimens Examined. Alaska, 1 ♂; Europe, 43 ♂♂, 27 ♀♀; Siberia, 3 ♂♂.

Biology. Laska and Stary (1980) listed two species of aphids as larval hosts in Czechoslovakia.

Discussion. The female can probably be distinguished from those of other nearctic species of the genus by the strongly produced face, with the lower facial margin extending beyond the tubercle, combined with black antennae and a distinctly pruinose scutum. The species of the *peltatus* group have the face almost as strongly produced but have the lower facial margin extending at most as far forward as the tubercle, the 1st flagellomere yellow-orange below, the scutum distinctly pruinose only laterally, and often the lower half of the anterior part of the anepimeron bare.

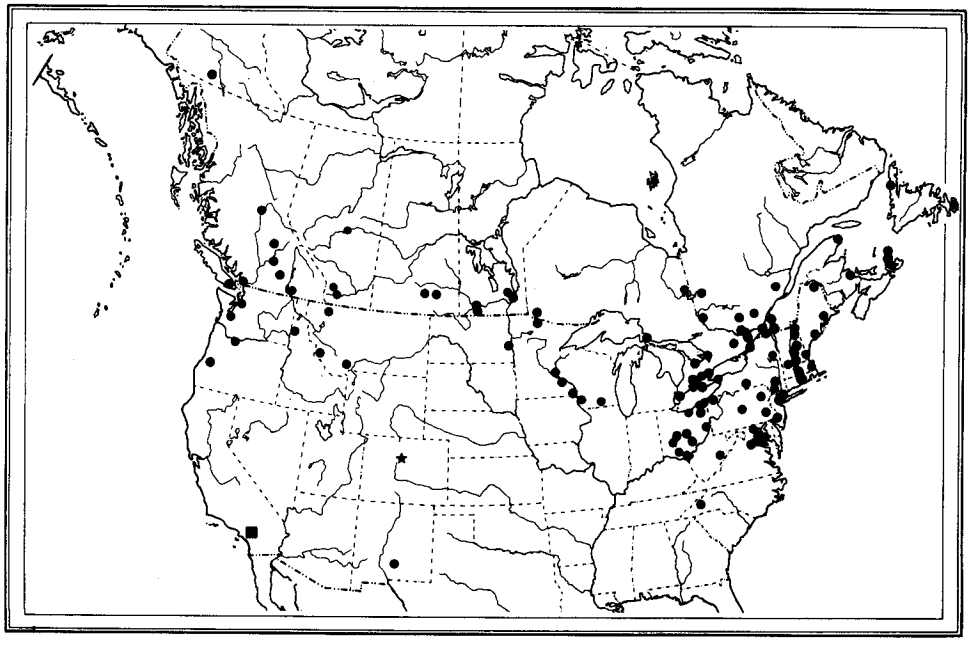
***Platycheirus modestus* Ide**

(Figs. 4, 47, 79; Map 19)

Platycheirus modestus Ide, 1926, p. 155.

Length 6.2–7.3 mm.

Male. Very similar to that of *immarginatus*, differing as follows: Face receding below (Fig. 4). Thoracic hairs entirely yellow; posterior part of anepisternum with hairs dense, uniform, very long and with crinkly apices. Legs variable in colour, similar in colour to those of *immarginatus* but never with hind leg mostly black and usually with last 2 tarsomeres of hind leg much paler than 1st tarsomere. Fore leg: setae on ventral surface of trochanter very short, about ⅓ as long as in *immarginatus*; femur posteriorly with only



MAP 20. Distribution of *Platycheirus nearcticus* sp.nov. (●), of *P. oreadis* sp.nov. (★), and of *P. russatus* sp.nov. (■).

fine yellow hairs, without subbasal white tuft or black bristles; tibia with posteroapical angle a little longer and more acute and with slightly more conspicuous hairs on basal two-thirds of posterior margin. Mid leg (Fig. 47): femur on apical three-eighths of anteroventral surface with slender black curved hairs which are twice as long as femoral diameter, otherwise with only very short hairs; tibia with dense subappressed crinkly black hairs about 3 times as long as tibial diameter on basal three-quarters of anteroventral and ventral surfaces. Abdomen (Fig. 79) with tergites 2–5 almost entirely yellow-orange, with anterior margin of 2 and posterior margins of 2–5 narrowly black, the black anterior margin of 2 with posteromedian triangular projection which may reach the middle of the tergite, the black posterior margins of 4 and 5 with short broad median triangular projection.

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: Megantic, Quebec. Holotype male in C.N.C.; examined by me.

Distribution. Alaska, Canada, south to Colorado, Wisconsin*, and New Hampshire (Map 19). B.C., VI; Ont., Que., VI–VIII.

Specimens Examined. Alaska, 26 ♂♂; Canada, 265 ♂♂; U.S.A., 37 ♂♂.

Biology. Specimens were collected in Nova Scotia in *Carex* marsh.

***Platycheirus nearcticus* sp.nov.**

(Fig. 24; Map 20)

Platycheirus peltatus, of American authors, not Meigen, 1822.

Length 8.4–10.5 mm.

Male. Very similar to that of *amplus*, differing as follows: Antenna usually mostly orange with 1st flagellomere brown on upper half or less, sometimes scape and pedicel brownish above or throughout and 1st flagellomere brown on about upper two-thirds.

Scutum sometimes with only pale hairs. Scutellar hairs usually entirely pale, rarely a few black hairs present near margin. Upper half of anepimeron with moderately dense tuft of upwardly directed pale brown hairs, lower half bare. Longest hairs of lower part of katepisternum from 1/6 to 1/2 length of arista. Wing membrane rather extensively bare: cell bm broadly bare basally and bare medially on from 1/2 to 5/6 its length. Knob of halter yellow to brown. Legs usually paler, fore and mid femora and 1st tarsomere of mid leg usually entirely yellow orange. Fore trochanter with ventral black setae about 1/2 as long as basal diameter of femur. Mid tibia (Fig. 24*k*) with anteroventral tuft on basal half subappressed, usually entirely pale, short, with longest hairs about 1.5 times as long as tibial diameter; hairs of posterior surface yellow to brown. Hind tibia (Fig. 24*n*) with setae of anterior surface moderately dense, rather fine, the longest about 1/2 as long as tibial diameter. First tarsomere of hind leg moderately swollen on about basal third, tapering evenly to rather slender apex.

Female. Not distinguishable from those of several related species.

Type Specimens. Holotype male: QUEBEC, Masham Twp., Gatineau Co., 22–26.VI.1974 (D.M. Wood). C.N.C. Type No. 17274. Paratypes: 284 males from localities indicated on Map 20. In many North American collections; B.M.(N.H.); Univ. Zool. Mus., Helsinki; Zool. Inst., Lund.; Zool. Inst., Leningrad; coll. J. Lucas, Rotterdam; coll. V.A. Mutin, Vladivostok; coll. T. Nielsen, Sandnes; coll. M.C.D. Speight, Bray.

Distribution. Western and southern Canada, south to Oregon, New Mexico, and North Carolina (Map 20). B.C., V–VII; Ont., Que., V–IX.

Specimens Examined. Canada, 147 ♂♂; U.S.A., 138 ♂♂.

Biology. Specimens were collected in Ontario and Nova Scotia in dry to moist mixed woodland.

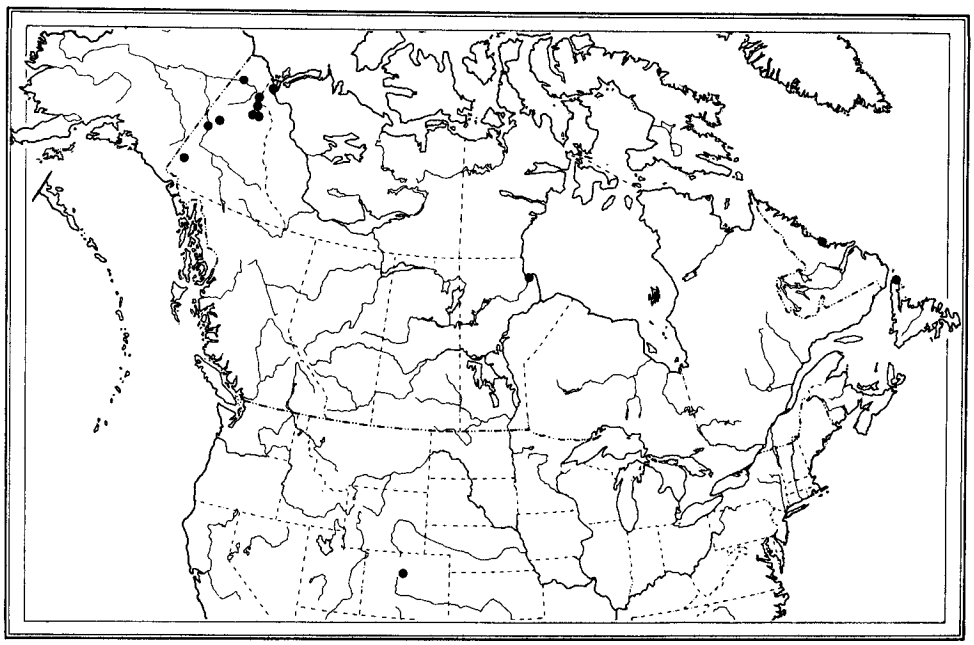
Discussion. I have seen many specimens of this species in the C.N.C. and in other collections determined by Curran and by other authors as *peltatus* (Meigen). *Platycheirus nearcticus* has cell bm bare on most of basal two-thirds, the hairs at anteroventral third of mid tibia subappressed and at most 1.5 times as long as tibial diameter, and the hairs on ventral surface of apical third of mid tibia appressed and extremely short. *Platycheirus peltatus* has cell bm bare only medially on about basal third, the hairs at anteroventral third of mid tibia erect or nearly so and about 2.5 times as long as tibial diameter, and the hairs on apical third of ventral surface of mid tibia erect and about 1/2 as long as tibial diameter. For further discussion of *peltatus* and similar species see above under *P. holarcticus*.

Platycheirus nielseni sp.nov.

(Fig. 25; Maps 21*a*, 21*b*)

Length 8.4–9.6 mm.

Male. Very similar to that of *amplus*, differing as follows: Face darker, with dark grey pruinosity. Scutum with hairs mostly black, paler hairs dark yellow. Scutellar hairs varying from dark yellow to mostly black. Hairs of posterior margin of anepisternum sometimes black. Upper half of anepimeron with moderately dense tuft of crinkly hairs, lower half bare. Longest hairs of lower part of katepisternum at least 1/2 as long as arista. Wing membrane with microtrichia rather sparse at extreme base but without distinct bare areas. Knob of halter yellow to brown. Legs often darker, with fore and mid femora often almost black on basal third of anterior surface and basal two-thirds of posterior surface. Fore trochanter with ventral black setae about 3/4 as long as basal diameter of femur. Mid tibia (Fig. 25*l*) strongly swollen below at apex; anteroventral tuft of basal half less dense, sometimes mostly pale, and with longest hairs about 1.5 times as long as tibial diameter; apical third of ventral surface with many black crinkly hairs, those at the base of the apical



MAP 21*a*. Distribution of *Platycheirus nielseni* sp.nov. in the New World.

swelling about as long as tibial diameter. Anterior surface of hind tibia (Fig. 25*n*) with more abundant and slightly longer setae. First tarsomere of hind leg less strongly swollen, tapering only slightly to apex. Yellow spots of tergite 5 smaller or absent.

Female. Not distinguishable from those of several related species.

Type Specimens. Holotype male: YUKON TERRITORY, Richardson Hwy., 65°55′N, 135°46′W, 3300 ft., 5.VII.1982 (D.M. Wood). C.N.C. Type No. 17278. Paratypes: 92 males from many localities in North America (Map 21*a*) and from mountains of western Europe (Map 21*b*); 1 male, SIBERIA: western part of Sayan Mts., Abaza region, 25.V.1981 (A. Barkalov). In C.N.C.; Calif. Acad. Sci.; Dayton Mus.; Fla. St. Coll. Arthr.; U.S.N.M.; Univ. B.C.; Wash. St. Univ; B.M.(N.H.); Inst. Biol., Novisibirsk; Univ. Mus., Oxford; Univ. Zool. Mus., Helsinki; Zool. Inst., Leningrad; coll. W. Barkemeyer, Oldenburg; coll. J. Lucas, Rotterdam; coll. T. Nielsen, Sandnes; coll. M.C.D. Speight, Bray.

Distribution. Northern Canada, south to Colorado (9800 ft.) (Map 21*a*); Europe (Map 21*b*); Siberia. Y.T., VI; Labr., VI–VII.

Specimens Examined. Canada, 32 ♂♂; U.S.A., 1 ♂; Europe, 60 ♂♂; Siberia, 1 ♂.

Etymology. The species name recognizes the contribution of Tore Nielsen to the study of northern *Platycheirus* and other Syrphidae.

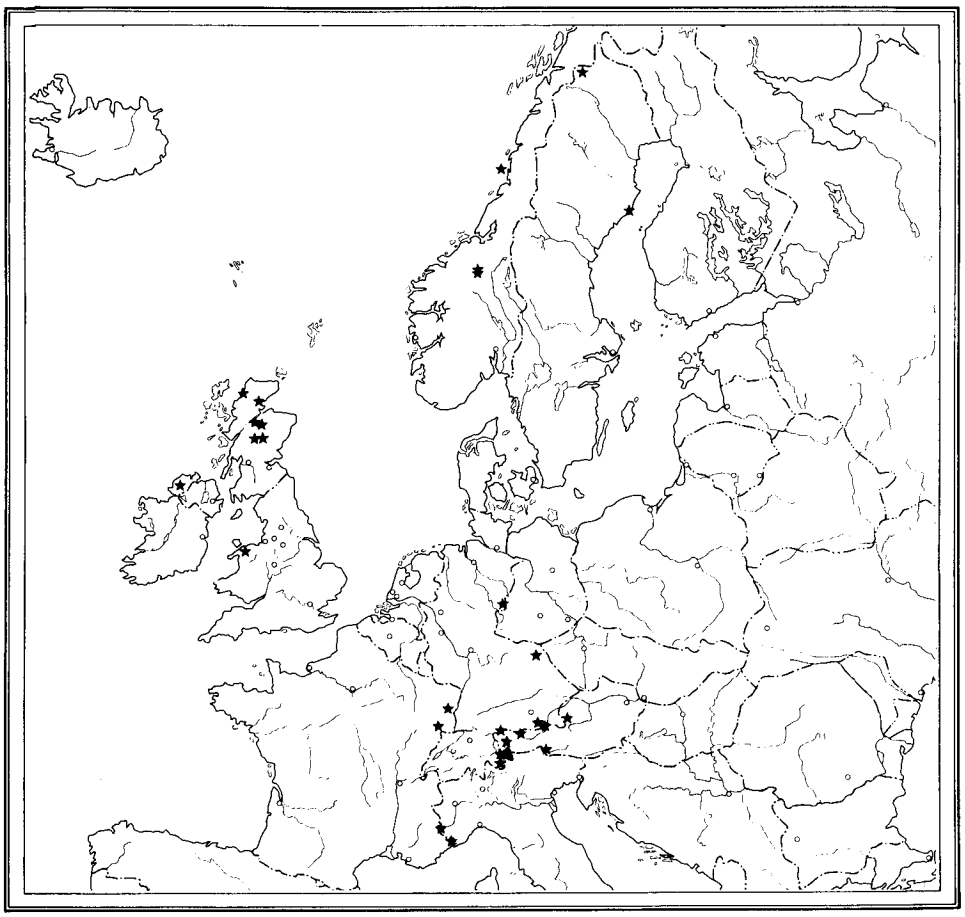
Platycheirus nigrofemoratus Kanervo, stat.nov.

(Fig. 30; Map 18)

Platycheirus albimanus var. *nigrofemoratus* Kanervo, 1934, p. 122.

Length 6.2–7.3 mm.

Male. Very similar to that of *albimanus*, differing as follows: Cell bm with at most a very small bare area near base. Fore leg (Fig. 30): tibia nearly uniformly broadened from base to apex; 1st tarsomere gradually broadened posteriorly from base to apex, the margins



MAP 21*b*. Distribution of *Platycheirus nielseni* sp.nov. in the Old World.

slightly divergent throughout, the apex distinctly arcuate; 2nd tarsomere with both basal and apical margins distinctly arcuate.

Female. Unknown, probably not distinguishable from those of related species.

Type Specimens. Type locality: Petsamo, Finland. Type(s) presumably in Z.M., Helsinki (original description not seen). I have seen one male from Abisko, Torne Lpm., Sweden, identified by T. Nielsen, who pointed out that what I had considered a new nearctic species was actually *nigrofemoratus*.

Distribution. Alaska, northern Canada (Map 18); northern Europe. Que., VI.

Specimens Examined. Alaska, 5 ♂♂; Canada, 9 ♂♂; Europe, 1 ♂.

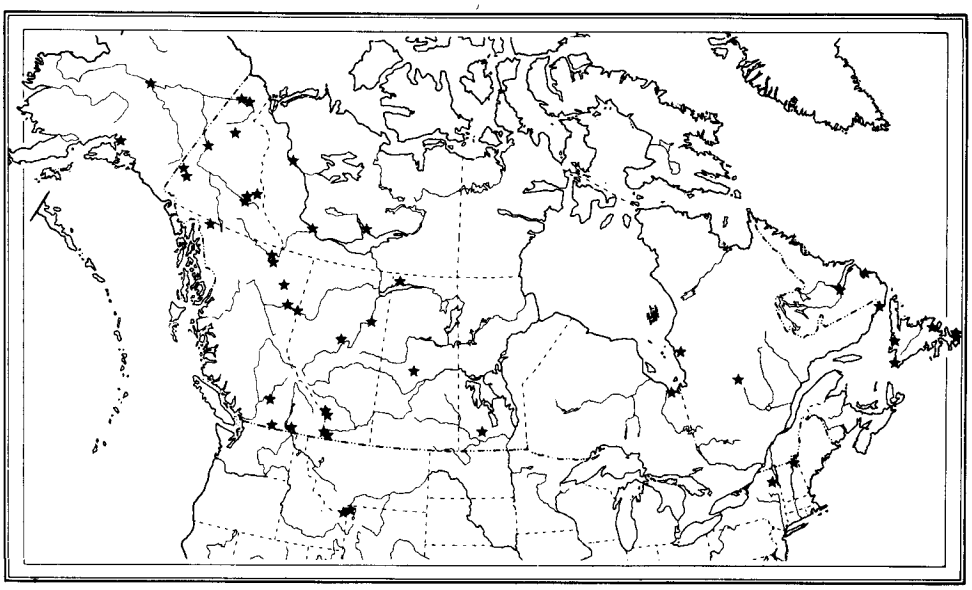
Platycheirus nodosus Curran

(Fig. 33; Map 22)

Platycheirus nodosus Curran, 1923*b*, p. 272.

Length 5.3–8.7 mm.

Male. Face slightly receding below, with very low broad tubercle, in profile as in *aeratus* (Fig. 6), with uniform dense dark grey pruinosity. Scutum and scutellum subshining, with slight greyish pruinosity and with pale yellow hairs. Pleura moderately grey



MAP 22. Distribution of *Platycheirus nodosus* Curran.

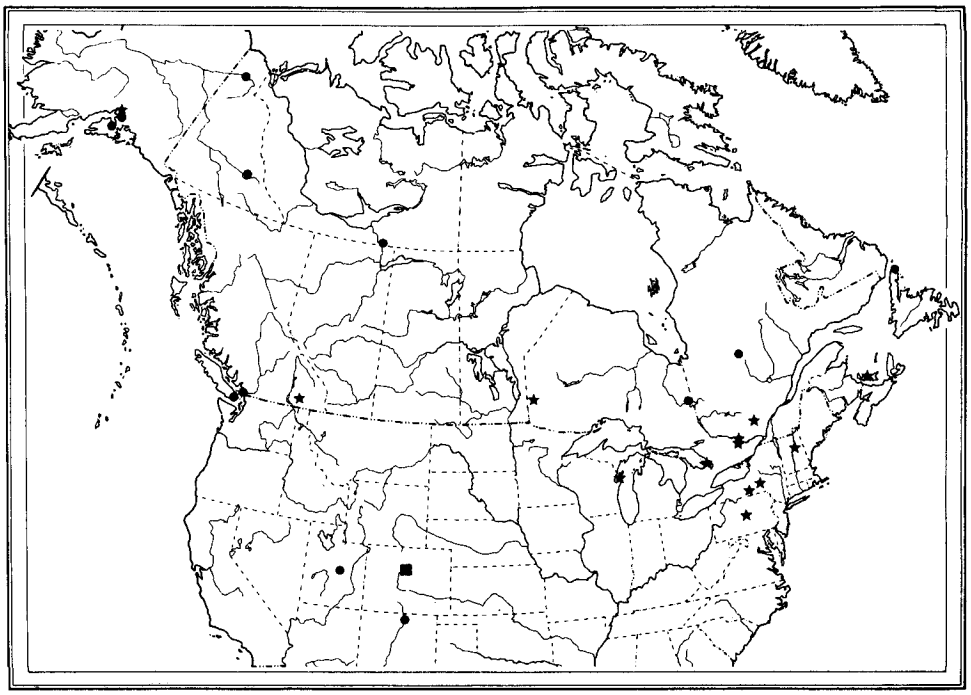
pruinose, pleural hairs mostly dark yellow, those of posterior margin of anepisternum sometimes blackish, those of lower part of katepisternum straight and rather stout, yellow or black, about ⅓ as long as arista. Wing membrane entirely trichose. Knob of halter bright yellow. Legs with coxae and trochanters black; fore and mid legs mostly yellow with brown posterior stripe on femora and with 5th tarsomere of fore leg sometimes, and that of mid leg always, brown to dark brown; hind leg black with narrow apex of femur and narrow base and apex of tibia yellow. Fore leg (Fig. 33*a*): trochanter with short stout yellow ventral setae; femur on posterior surface just beyond base with 2 tufts, each of 3 closely appressed long dark yellow hairs with black flattened lanceolate tips which are slightly narrower on the basal tuft than on the other, otherwise with only very short sparse hairs which are at most ½ as long as femoral diameter; tibia almost uniformly broadened from base to ¾ its length, then slightly narrowed to apex, with posteroapical angle strongly produced, and without outstanding hairs; 1st tarsomere about ⅔ as wide as widest part of tibia, slightly longer than wide, rather strongly narrowed posteriorly on basal half; last 4 tarsomeres normal, slightly narrower than 1st tarsomere. Mid leg (Fig. 33*e*): femur with short sparse hairs at most ⅔ long as femoral diameter; tibia slender, with rather long fine strongly appressed yellow or black anteroventral hairs on basal two-thirds. First tarsomere of hind leg only slightly swollen, about 4 times as long as its greatest depth. Abdomen black with a pair of bright yellow-orange spots on each of tergites 2–5, those of tergite 2 usually not reaching the anterior margin and about ⅚ as long as the tergite, those of 3 and 4 similar but reaching the anterior margins, those of 5 large leaving only a median triangle black.

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: Banff, Alta. Holotype male in C.N.C.; examined by me.

Distribution. Alaska, Canada, south to Wyoming, New York (555 m), and New Hampshire (Map 22). B.C., V, VI; Que., VI, VII.

Specimens Examined. Alaska, 5 ♂♂; Canada, 101 ♂♂; U.S.A., 4 ♂♂.



MAP 23. Distribution of *Platycheirus normae* Fluke (★), of *P. parmatus* Rondani (●), and of *P. protrusus* sp.nov. (■).

Platycheirus normae Fluke

(Figs. 48, 69; Map 23)

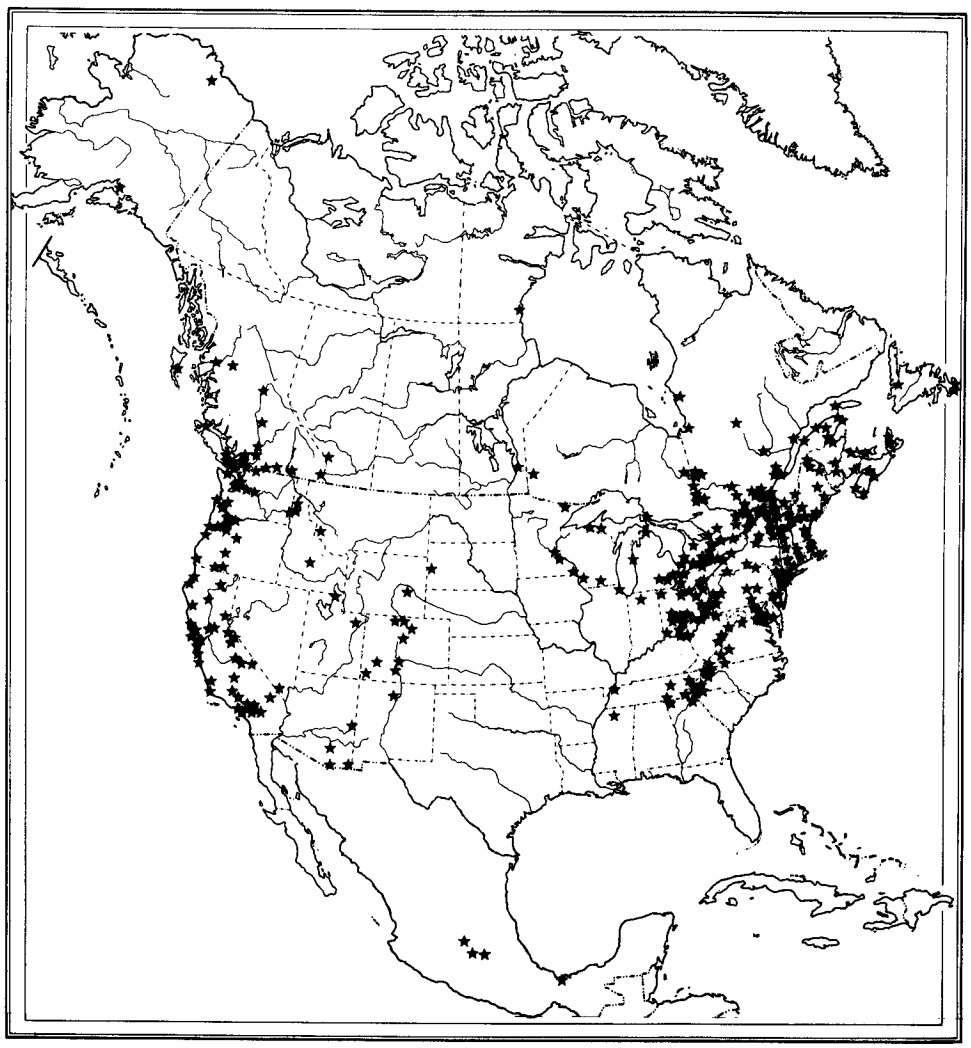
Platycheirus normae Fluke, 1939, p. 366.

Length 7.1–8.4 mm.

Male. Similar to that of *immarginatus*, differing as follows: Facial tubercle less prominent. Thoracic hairs entirely yellow; posterior part of anepisternum with hairs moderately long and dense, uniform, nearly straight. Legs mostly yellow-orange with coxae black and tibia and 1st tarsomere of fore leg whitish. Fore leg (Fig. 48): trochanter with short broadly triangular ventral process, in anterior view subquadrate rather than subtriangular, with very short pale ventral setulae; fore femur posteriorly with subbasal tuft of 3 shorter, less densely appressed, yellow rather than white hairs, the tuft followed by about 6 rather long strong yellow hairs on basal half of femur, rest of femur nearly bare; tibia much more strongly broadened, with posterior margin strongly curved and with strong oblique dorsal keel on apical three-eighths; 1st tarsomere broadened just beyond base, then slightly to strongly constricted and compressed and slightly broadened at apex; tarsomeres 2–4 wide, very short. Mid femur and tibia without conspicuous hairs, setae, or bristles; 1st tarsomere of mid leg rather strongly compressed, slightly wider at base and apex than at mid length. Abdomen (Fig. 69) with tergites 2–5 almost entirely yellow-orange, tergite 2 with very narrow black anterior margin, 2–4 with narrow black posterior margin with short median triangular projection, 5 sometimes with trace of similar black posterior margin. Sternites yellow.

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: Door County, WI. Holotype male in A.M.N.H.; examined by me.



MAP 24. Distribution of *Platycheirus obscurus* (Say).

Distribution. Alaska, Canada, south to Wisconsin and Pennsylvania (Map 23). Ont., Que., VI–VIII.

Specimens Examined. Alaska, 1 ♂; Canada, 7 ♂♂; U.S.A., 6 ♂♂.

Biology. Adults were reared in August from larvae feeding on the aphid *Sipha glyceriae* (Kaltenbach) on *Glyceria* sp. in Centre Co., PA (F.D. Fee, *in litt.*). One male was taken at Beechgrove, Que., in late June with specimens of *P. immarginatus*, *P. scambus*, and *P. thompsoni*, in a wet *Carex–Salix* marsh.

***Platycheirus obscurus* (Say), comb.nov.**
(Figs. 7, 95; Map 24)

Syrphus obscurus Say, 1824, pl. 11.
Carposcalis obscurus: Fluke, 1958, p. 265.
?*Melanostoma rostrata* Bigot, 1884, p. 80. **syn.nov.**

Melanostoma ontario Davidson, 1922, p. 37. **syn.nov.**
Melanostoma nitidiventris Curran, 1931, p. 252. **syn.nov.**

Length 6.8–9.4 mm.

Male. Very similar to that of *confusus*, differing as follows: Face a little more strongly produced forward below, with a shallower convexity between tubercle and lower facial margin, and with lower margin produced as far, and usually slightly farther, forward than facial tubercle (Fig. 7). Scutum and sometimes scutellum with many pale hairs; pleura with at most a few hairs near upper margin black. Wing sometimes more extensively bare; in eastern specimens cell c bare at extreme base and cell bm bare on about anterobasal third; in western specimens bare areas variable in extent, ranging from condition found in eastern specimens to cell c bare or nearly so on basal three-quarters and cell bm with only a few microtrichia near apex (wings most extensively bare in specimens from southern California and Arizona). Legs usually paler, with up to apical half of fore and mid femora, all of fore and mid tibiae and rarely hind tibia, and 1st and sometimes 2nd tarsomere of fore and mid legs orange. Posterior bristles of fore and mid tibiae slightly weaker. Abdomen with spots usually more strongly silvery pruinose, those on tergite 2 broader and sometimes separated by only ½ width of tergite, those on tergites 3 and 4 sometimes distinctly orange. Surstylus (Fig. 95) with shorter lobe larger, otherwise much as in *confusus*.

Female. Very similar to that of *confusus*, differing as follows: Facial profile as in male of *obscurus*. Wing with macrotrichia less abundant than in male of *obscurus*, almost as variable in eastern as in western specimens but in some of the latter with cells c and bm almost entirely bare. Abdominal spots similar to those of male of *obscurus* but usually mostly or entirely orange rather than metallic.

Type Specimens. *Syrphus obscurus* Say. Type locality: Pennsylvania, by present restriction. Type specimens almost certainly lost.

?*Melanostoma rostrata* Bigot. Type locality: California. Holotype female in Hope Museum, Oxford; examined by me.

Melanostoma ontario Davidson. Type locality: Guelph, Ont. Holotype male in U.S.N.M.; examined by me.

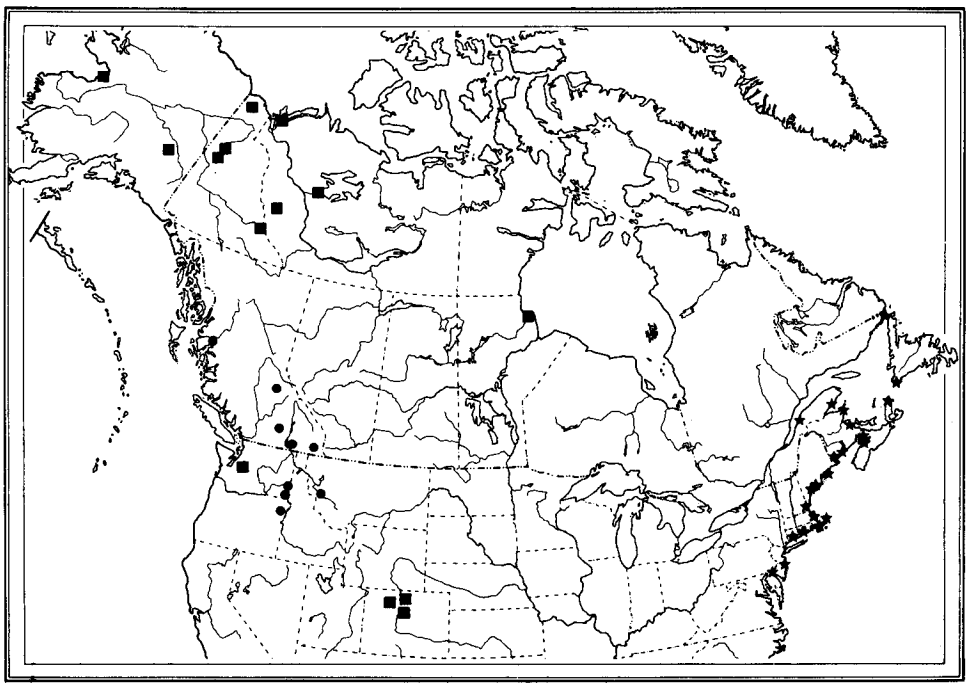
Melanostoma nitidiventris Curran. Type locality: Jordan, Ont. Holotype female in C.N.C.; examined by me.

Distribution. Alaska, Canada, south to California, southern Mexico, Mississippi, and Georgia (Map 24). B.C., IV–X; Ont., Que., IV–IX.

Specimens Examined. Alaska, 1 ♂; Canada, 446 ♂♂, 397 ♀♀; U.S.A., 897 ♂♂, 745 ♀♀; Mexico, 3 ♂♂, 5 ♀♀.

Biology. Larvae were reared in the laboratory on four species of aphids and developed without diapause (Davidson 1922). I have reared adults from larvae fed on *Myzus persicae*. Davidson quotes Curran as saying that larvae will feed on rotting chickweed. Males frequently hover at heights of 1–2 m in mixed woodland. The flight season is much longer than that of *confusus*; in the Ottawa, Ont., area many specimens have been taken in late September, suggesting at least two generations; most specimens have been taken in rather dry woods, rather than in bogs and marshes which are the preferred habitats of *confusus*.

Discussion. This species, like *confusus*, has a markedly disjunct distribution (Map 24). However, in this case there is some overlap in the extent of wing microtrichia in eastern and western specimens so that it is less likely that two species are involved. This variation in wing microtrichia makes it difficult to distinguish western specimens of this species from those of *confusus*; only the slight differences in facial profile, and in the colour of thoracic hairs, the strength of the tibial bristles, and the shape of the surstylus in the male, seem to be of value in distinguishing the species in the west.



MAP 25. Distribution of *Platycheirus octavus* sp.nov. (●), of *P. orarius* sp.nov. (★), and of *P. pilatus* sp.nov. (■).

Platycheirus octavus sp.nov.
(Fig. 26; Map 25)

Length 7.7–9.6 mm.

Male. Very similar to that of *amplus*, differing as follows: Anepimeron with moderately dense tuft of hairs on upper half only. Scutellum sometimes with a few black hairs. Wing membrane usually more extensively bare — about basal fifth of cell c and up to anterobasal third of cell bm mostly bare. First tarsomere of fore leg with distinct and moderately strong dorsal keel on entire length. Mid tibia with anteroventral hairs on basal half pale, subappressed, the longest about 1.5 times as long as tibial diameter. Hind tibia with anterior setae about as long as tibial diameter, those on basal half directed slightly toward apex, those on apical half directed dorsally (Fig. 26*n*). First tarsomere of hind leg slightly less strongly swollen, tapering evenly to apex.

Female. Probably not distinguishable from those of several related species.

Type Specimens. Holotype male: BRITISH COLUMBIA, Robson, 28.IV.1958 (H.R. Foxlee). C.N.C. Type No. 17460. Paratypes: 18 males from localities indicated on map 25. In C.N.C.; Fla. St. Coll. Arthr.; U.S.N.M.; Univ. B.C.; Wash. St. Univ.; coll. T. Nielsen, Sandnes.

Distribution. British Columbia, Washington, Oregon, Montana (Map 25). B.C., IV–VI.

Specimens Examined. Canada, 8 ♂♂; U.S.A., 11 ♂♂.

Platycheirus orarius sp.nov.
(Figs. 49, 80, 85; Map 25)

Length 7.9–9.6 mm.

Male. Very similar to that of *immarginatus*, differing as follows: Thoracic hairs entirely pale except sometimes a few stiff black hairs present on lower part of katepisternum; posterior part of anepisternum with hairs moderately dense, uniform, with scarcely crinkly apices; upper part of katepisternum with at least 12 hairs. Legs yellow-orange with coxae, fore and mid trochanters, 1st and last 2 tarsomeres of hind leg, and sometimes obscure marks on hind tibia dark brown to black; 2nd and 3rd tarsomeres of hind leg sometimes brown above but distinctly paler than last 2 tarsomeres. Fore leg (Fig. 49*a*): trochanter with yellow ventral setulae very short; femur without posterior subbasal tuft of pale hairs, with many rather long straight posterior and ventral yellow hairs, a row of 3 or 4 posterior hairs longer and stronger and with 1 or 2 sometimes black and a cluster of several longer subbasal ventral hairs black; tibia with posteroapical angle a little more acute; 1st tarsomere a little more abruptly widened beyond base, reaching its maximum width at about ⅔ its length rather than beyond mid length; 2nd tarsomere a little longer than wide. Mid femur (Fig. 49*i*) anteroventrally usually with an irregular group of weak black setae at mid length followed by sparse fine wavy black hairs about 1.5 times as long as femoral diameter, ventrally with long hairs a few of which are black and slightly stronger. Mid tibia with dense, very crinkly, mostly yellow hairs, about as long as tibial diameter, on almost all of anteroventral, ventral, and posteroventral surfaces. Abdomen (Fig. 80) as in paler specimens of *immarginatus* but with slightly wider median black line. Surstylus (Fig. 85) with very large dorsobasal lobe.

Female. Not distinguishable from those of several similar species.

Type Specimens. Holotype male: NEW HAMPSHIRE, Odiorne Beach, Rye, 22.VI.1982 (J.R. Vockeroth), swept from salt marsh. C.N.C. Type No. 17275. Paratypes: 65 males, 33 females, from localities indicated on Map 25 (these females are treated as paratypes as they were taken in salt marshes with males). In C.N.C.; Royal B.C. Mus.; A.M.N.H.; Calif. Acad. Sci.; Dayton Mus.; Fla. St. Coll. Arthr.; M.C.Z.; N.S. Mus.; N.Y. St. Mus.; Ohio St. Univ.; U.S.N.M.; Univ. B.C.; Univ. Calif., Riverside; Univ. N.H.; Wash. St. Univ.; B.M.(N.H.); Zool. Inst., Leningrad; coll. J. Lucas, Rotterdam; coll. T. Nielsen, Sandnes.

Distribution. Eastern Canada, south along coast to New Jersey (Map 25). Que., VIII; N.B., VI, VII.

Specimens Examined. Canada, 25 ♂♂, 16 ♀♀; U.S.A., 41 ♂♂, 17 ♀♀.

Biology. Thirty-three specimens from four localities are labelled as having been taken in salt marsh; at the type locality, a salt marsh on the coast of New Hampshire, eight males and 13 females of *orarius*, but no other *Platycheirus*, were taken. As all specimens were taken at coastal localities it is probable that the species is restricted to salt marshes. No other nearctic species of Syrphinae is known to be so restricted.

Platycheirus oreadis sp.nov.
(Figs. 16, 67; Map 20)

Length 6.2–7.9 mm.

Male. Similar to that of *discimanus*, differing as follows: Face produced a little more forward and downward, moderately pale grey pruinose with only tubercle shining. Thoracic hairs almost all white, scutum with a very few black hairs. Base of cell bm with an indistinct bare area. Fore and mid tibiae dull yellow; fore and mid tarsi mostly yellow, brownish above toward apex. First tarsomere of fore leg (Fig. 16*a*) strongly broadened beyond base, very oblique apically, 1.16–1.33 times as long as wide and about 2.5 times

as wide as apex of fore tibia; 2nd tarsomere oblique in position, about 2.5 times as wide as long. Mid tibia (Fig. 16*k*) with most of posterior and posteroventral surface with dense fine rather long hairs. Mid tarsus not at all compressed. Hind tibia with most of basal half of anterodorsal surface with fine black progressively longer hairs, the longest at least 2.5 times as long as tibial diameter. First tarsomere of hind leg strongly swollen, about 3 times as long as greatest depth. Abdomen (Fig. 67) with spots of tergites larger, subshining dark blue, with very faint greyish pruinosity.

Female. Unknown.

Type Specimens. Holotype male: COLORADO, Mt. Evans, 13 200 ft., 6.VIII.1961 (S.M. Clark). C.N.C. Type No. 17276. Paratype male: COLORADO, Summit L., Mt. Evans, 12 800 ft., 10.VII.1961 (S.M. Clark). In C.N.C.

Distribution. Colorado (Map 20); VII, VIII.

Specimens Examined. U.S.A., 2 ♂♂.

Platycheirus parmatus Rondani

(Figs. 5, 50; Map 23)

Platycheirus parmatus Rondani, 1857, p. 121.
Platycheirus ovalis Becker, 1921, p. 27. **syn.nov.**
Platycheirus bigelowi Curran, 1927, p. 5. **syn.nov.**

Length 9.1–10.1 mm.

Male. Similar to that of *jaerensis*, differing as follows: Face (Fig. 5) with slightly more prominent tubercle. Antenna black with about lower third of 1st flagellomere orange. Thoracic hairs longer, those of scutum, scutellum, and upper half of pleura black and white mixed. Lower katepisternal hairs as long as arista. Wing with indistinct bare area along middle of basal quarter of cell bm. Legs darker; basal four-fifths of fore and mid femora, posterior streak on fore tibia, and most of apical half of mid tibia brown to blackish-brown. Fore leg (Fig. 50*a*): trochanter with ventral setae longer and weaker; femur with posterior hairs up to twice as long as femoral diameter; tibia slightly more strongly broadened on apical sixth; 1st tarsomere much wider, about 1.5 times as long as wide, almost twice as wide as apex of fore tibia; 2nd tarsomere very short, subtriangular, about 7/8 as wide as 1st tarsomere. Mid leg (Fig. 50*f*): femur without anterior concavity or stiff setae, basal two-thirds with long fine black anteroventral hairs, apical third with similar but shorter reflexed or upwardly curved hairs; tibia with dense soft crinkly black hairs on ventral and posterior surfaces, the longest 3 times as long as tibial diameter. First tarsomere of hind leg more strongly swollen, about 3.5 times as long as its greatest depth. Abdomen with yellow spots of tergites 3 and 4 slightly smaller, well separated from anterior margin, and yellow spots of tergite 5 restricted to anterolateral corners.

Female. Not distinguishable from those of several similar species.

Type Specimens. *Platycheirus parmatus* Rondani. Type locality: Italy (foothills of the Alps). Holotype male in Mus. Zool. Univ. Firenze, Florence; examined by me.

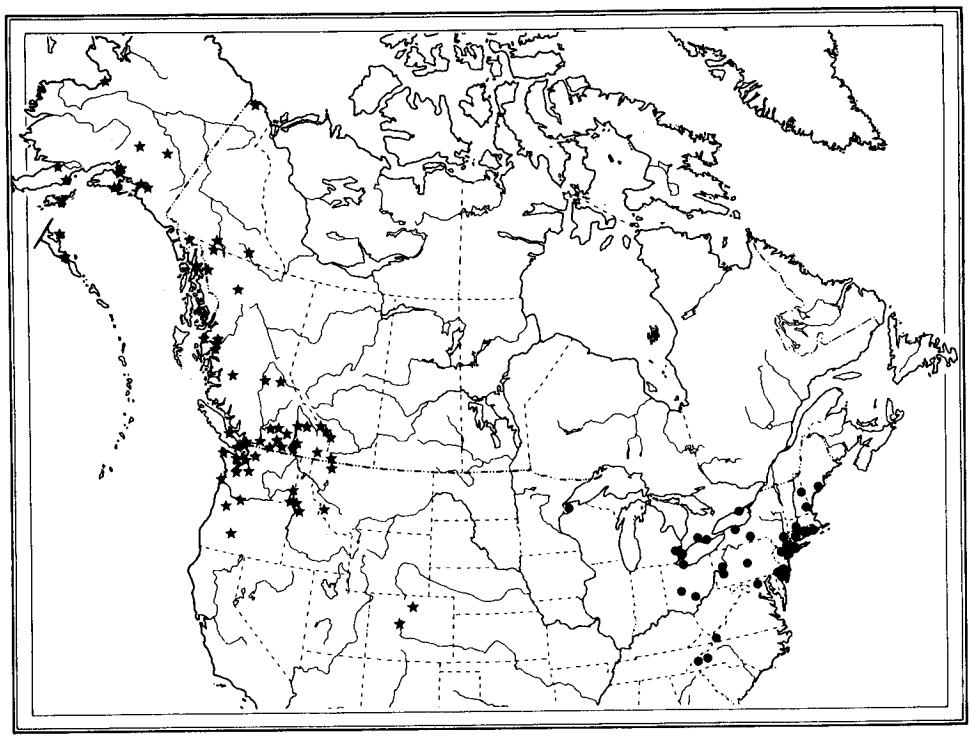
Platycheirus ovalis Becker. Type locality: Goro-Blagodat, Ural [Siberia]. Holotype male in Zool. Mus. Univ., Berlin; examined by me.

Platycheirus bigelowi Curran. Type locality: Low Bush, Lake Abitibi, Ont. Holotype male in C.N.C.; examined by me.

Distribution. Alaska, northern Canada, south to New Mexico (9000 ft.) (Map 23); Europe; Siberia; Japan*. B.C., IV; Ont., Que., VI.

Specimens Examined. Alaska, 5 ♂♂; Canada, 8 ♂♂; U.S.A., 4 ♂♂; Europe, 9 ♂♂; Siberia, 4 ♂♂.

Biology. Goeldlin (1974) found that this species (as *ovalis*) had an obligatory larval diapause of 8–10 months in Switzerland.



MAP 26. Distribution of *Platycheirus peltatoides* Curran (★) and of *P. scamboides* Curran (●).

Platycheirus peltatoides Curran
(Fig. 27; Map 26)

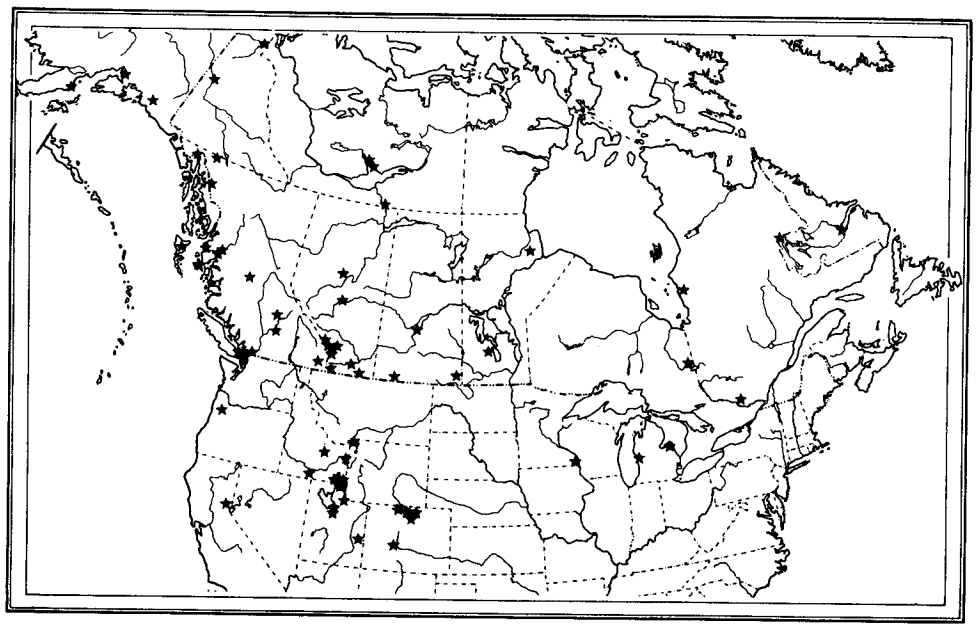
Platycheirus peltatoides Curran, 1923*b*, p. 274.

Length 8.2–10.5 mm.

Male. Very similar to that of *amplus*, differing as follows: Face produced slightly more strongly forward below. Scutum and scutellum with hairs mostly black, paler hairs dull yellow. Pleural hairs pale brown to black. Upper half of anepisternum with rather loose tuft of upwardly directed crinkly brown hairs, lower half bare. Longest hairs of lower part of katepisternum at least ¾ as long as arista. Wing membrane entirely trichose or with very small and indistinct bare areas at base of cells c and bm. Knob of halter dark brown. Fore trochanter with ventral black setae as long as basal diameter of fore femur. First tarsomere of fore leg with moderately strong dorsal keel on most of its length (as in Fig. 20*b*); 2nd tarsomere with obscure broad dorsal keel. Mid tibia with anteroventral tuft on basal half scarcely discernible, diffuse, subappressed, the hairs pale or dark and shorter than tibial diameter; apical half of posterior surface with short inconspicuous hairs. Anterior surface of hind tibia (Fig. 27) with short appressed black setae on basal third to half and with long, rather slender, upcurved, irregularly spaced black setae, the longest at least 1.5 times as long as tibial diameter, on apical half to two-thirds.

Female. Not distinguishable from those of several related species.

Type Specimen. Type locality: Penticton, B.C. Holotype male in C.N.C.; examined by me.



MAP 27. Distribution of *Platycheirus perpallidus* Verrall.

Distribution. Alaska, western Canada, south to Oregon and Colorado (Map 26). B.C., V–VIII.

Specimens Examined. Alaska, 78 ♂♂; Canada, 130 ♂♂; U.S.A., 20 ♂♂.

Platycheirus perpallidus Verrall

(Figs. 42, 74; Map 27)

Platycheirus perpallidus Verrall, 1901, p. 290.

Length 5.7–9.1 mm.

Male. Very similar to that of *immarginatus*, differing as follows: Thoracic hairs usually entirely pale; posterior part of anepisternum with hairs sometimes partly brown or black, very dense, long, uniform, with very crinkly apices; some or all of the lower katepisternal hairs sometimes stiff and black. Legs almost as variable in colour as in *immarginatus* but not as dark as in the darkest specimens of that species. Fore leg (Fig. 42*a*): trochanter with moderately long pale setae on ventral surface; femur with posterior subbasal tuft of 3 long crinkly closely appressed white hairs, otherwise with fine, mostly short, yellow hairs; tibia with posterior margin a little straighter, with posteroapical angle a little longer. Mid leg (Fig. 79*g*): femur anteroventrally on basal two-thirds with very irregular row of short stiff rather weak yellow (or sometimes partly black) setae, on apical third with an irregular row of fine crinkly black hairs up to 2.5 times as long as femoral diameter, ventrally on basal half with a row of long stiff yellow hairs slightly weaker than those of *immarginatus*, posteroventrally on apical quarter with a few long slender black hairs; tibia on basal two-thirds of anteroventral surface with dense fine crinkly black or yellow hairs which near base are 4 times as long as tibial diameter, ventrally on basal half to two-thirds with similar but shorter hairs. Abdomen (Fig. 74) similar to that of paler specimens of *immarginatus*, sometimes with median and apical black marks of tergites 3 and 4 nearly obsolete, rarely with black median line considerably broadened and tergite 2 narrowly black laterally.

Female. Not distinguishable from those of several similar species.

Type Specimens. Type locality: Sutton, Birmingham, England. Three syntypes in Hope Museum, Oxford, were examined. One male labelled "Sutton/Birmingham/2.7.95" is here designated as lectotype; it has been so labelled. One male and one female (Sutton, 16.VI.95) have been labelled as paralectotypes.

Distribution. Alaska, Canada, south to California, Colorado, Michigan, and Massachusetts* (Map 27); Europe; Siberia; Japan*. B.C., VII, VIII; Ont., Que., VII.

Specimens Examined. Alaska, 11 ♂♂; Canada, 85 ♂♂; U.S.A., 24 ♂♂; Europe, 6 ♂♂; Siberia, 1 ♂.

Biology. Metcalf (1917) reared larvae in the laboratory on *Aphis cornifoliae*. "The adults [in Maine] are commonest in tall grass, seeming to show a preference for the proximity of open ditches where they hover about, alighting frequently on the grass blades or spikes. . ." (Metcalf 1917).

Platycheirus pilatus sp.nov.
(Figs. 34, 71; Map 25)

Length 5.3–7.9 mm.

Male. Very similar to that of *nodosus*, differing as follows: Face sometimes with tubercle slightly shining. Thoracic hairs longer, many of those of anepisternum and anepimeron brown to black; lower katepisternal hairs almost all stiff and black. Last 4 tarsomeres of fore and mid legs brown. Fore leg (Fig. 34*a*): femur with hairs of basal tuft pale throughout and with apices only very slightly broadened, other hairs more abundant and longer, some slightly longer than tibial diameter; tibia less strongly broadened and with posteroapical angle scarcely produced; 1st tarsomere almost twice as long as wide, with sides almost parallel. Mid leg (Fig. 34*e*): femur with much longer hairs, many of those on posteroventral surface 1.5 times as long as femoral diameter; tibia with anteroventral hairs black, those on basal third erect or suberect. Abdomen (Fig. 71) with yellow-orange spots slightly or much smaller, variable in size, on tergite 2 usually circular and at most ½ as long as tergite, on 3 at most 5/7 as long as tergite, on 4 at most ⅝ as long as tergite, on 5 obscure or absent.

Female. Not distinguishable from those of several similar species.

Type Specimens. Holotype male: COLORADO, Echo L., Mt. Evans, 10 600 ft., 12.VII.1961 (C.H. Mann). C.N.C. Type No. 17277. Paratypes: 36 males from localities indicated on Map 25. In C.N.C.; A.M.N.H.; Calif. Acad. Sci.; Dayton Mus.; Lyman Ent. Mus.; U.S.N.M.; Univ. B.C.; Univ. Nebr.; B.M.(N.H.); Zool. Inst., Leningrad; coll. J. Lucas, Rotterdam; coll. T. Nielsen, Sandnes.

Distribution. Alaska, northwestern Canada, south to Colorado (10 600 ft.) (Map 25). Man., VI, VII.

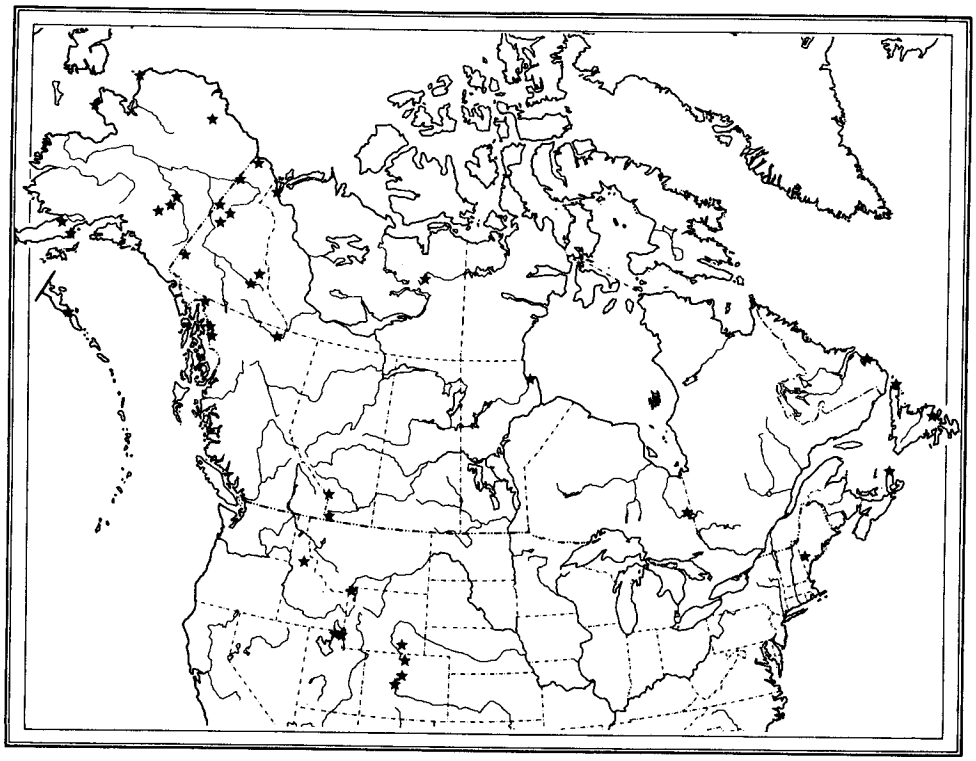
Specimens Examined. Alaska, 3 ♂♂; Canada, 23 ♂♂; U.S.A., 11 ♂♂.

Platycheirus podagratus (Zetterstedt)
(Fig. 43; Map 28)

Scaeva podagrata Zetterstedt, 1838, p. 606.
Platycheirus podagratus: Schiner, 1861, p. 296.

Length 5.7–7.7 mm.

Male. Similar to dark specimens of *immarginatus*, differing as follows: Face with tubercle a little less prominent, with sparse grey pruinosity so face is almost black. Thoracic hairs usually yellow to yellow brown, those on lower half of posterior margin of anepisternum sometimes dark brown to blackish, some of those on lower part of katepisternum black and stiff; posterior part of anepisternum with hairs uniform, rather sparse,



MAP 28. Distribution of *Platycheirus podagratus* (Zetterstedt).

wavy; upper part of katepisternum bare or with a few hairs. Leg colour as in *tenebrosus* or with mid leg a little more extensively yellow. Fore leg (Fig. 43): trochanter with yellow or black setulae below; femur posteriorly with subbasal tuft of 2 or 3 long closely appressed wavy white hairs closely followed by several similar black hairs which may form a loose tuft, otherwise with shorter rather sparse black or yellow hairs; tibia gradually broadened on about basal three-fifths, then strongly broadened especially posteriorly and slightly narrowed apically, with posteroapical angle short and broad; 1st tarsomere rather strongly broadened posteriorly on basal two-fifths to half, then very slightly narrowed to apex, as wide as long; 2nd and 3rd tarsomeres subrectangular, each about 1.5 times as wide as long. Mid femur usually with few to many short weak black setae on basal half of anterior and anteroventral surfaces, otherwise with fine weak mostly black hairs. Mid tibia nearly cylindrical, on basal half anteroventrally with fine black suberect wavy hairs about 3.5 times as long as tibial diameter. First tarsomere of hind leg less strongly swollen, about 4 times as long as its greatest depth. Abdomen very similar to that of *tenebrosus* (Fig. 73) and similarly variable but with orange spots of tergites 3 and 4 reaching or nearly reaching anterior margins.

Female. Not distinguishable from those of several similar species.

Type Specimens. Type locality: Lycksele, Sweden. Type(s) presumably in Zool. Inst., Lund.

Distribution. Alaska, western and northern Canada, south to Colorado (10 600 ft.) and Maine (Map 28); Europe; Siberia. B.C., VII; Ont., VI.

Specimens Examined. Alaska, 50 ♂♂; Canada, 47 ♂♂; U.S.A., 10 ♂♂; Europe, 13 ♂♂; Siberia, 2 ♂♂.

Biology. Specimens were taken in Nova Scotia in a damp open sphagnum fen at 300 m.

Platycheirus protrusus sp.nov.

Length 6.1–6.6 mm.

Male. Similar to that of *carinatus*, differing as follows: Face with distinctly larger and more pointed tubercle near lower margin and without keel above tubercle. Thoracic hairs mostly black, pale only on katepisternum and on lower part of anepimeron. Knob of halter yellow. Fore femur with only very weak short setae below; fore tibia with posterior bristles slightly weaker; 1st tarsomere of fore leg with only very short hairs. Mid femur with only very weak short setae below; mid tibia with posterior bristles slightly weaker and less appressed. Abdomen with spots of tergites 2–4 very faint. Paramere similar to that of *setitarsis* (Fig. 86) but a little more slender and with spine less widely divergent from base.

Female. Similar to male, with large facial tubercle and without keel below antennae. Thoracic hairs shorter, sometimes extensively white. Tibiae without bristles.

Type Specimens. Holotype male: COLORADO, Mt. Evans, 14 000 ft., 25.VII.1961 (B.H. Poole). C.N.C. Type No. 17278. Paratypes: 2 females, same locality and date (B.H. Poole, W.R. Mason); in C.N.C.

Distribution. Colorado (Map 23); VII.

Specimens Examined. U.S.A., 1 ♂, 2 ♀♀.

Platycheirus pullatus sp.nov.

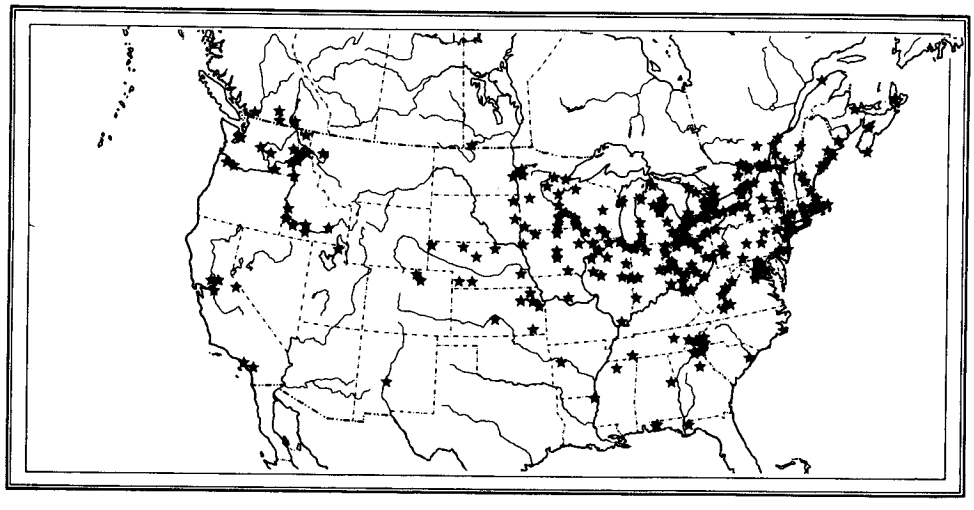
(Fig. 89; Map 34)

Length 6.2–7.9 mm.

Male. Similar to that of *carinatus*, differing as follows: Face slightly narrower, the upper part with very weak median keel or groove. Thorax with hairs almost entirely black in northern specimens, mostly white in Alberta specimen. Knob of halter dark brown to blackish. Fore leg with only fine hairs, without outstanding hairs or bristles; tibia and tarsus with hairs much shorter than tibial or tarsal diameter. Mid femur anteroventrally with an irregular row of short weak black setae on most of its length. Mid tibia anteroventrally sometimes with a row of appressed or suberect weak black or pale bristles, those near apex about twice as long as tibial diameter; posteriorly with short appressed hairs. First tarsomere of mid leg anteroventrally with 3 or more irregular white or black setae which in length are subequal to tibial diameter. First tarsomere of hind leg slightly swollen, about 4.5–5 times as long as its greatest depth. Abdominal markings similar to those of *carinatus* but spots without orange background, usually with distinctly bluish-grey tint, and extending to anterior margins of tergites 2–4. Surstylus (Fig. 89*b*) with broad blunt subbasal process. Paramere (Fig. 89*c*) with heavy base and heavy curved spine. Aedeagus (Fig. 89*d*) with thick dorsobasal process and long strong preapical ventral spine.

Female. Not distinguishable from those of several similar species.

Type Specimens. Holotype male: NORTHWEST TERRITORIES, Victoria I., 71°17′N, 114°W, 23–28.VII.1975 (G. & M. Wood). C.N.C. Type No. 17279. Paratypes (15 males): 5 males with same data as holotype but dates from 1–10.VII.1975. YUKON TERRITORY: 1 male, Richardson Mts., 66°07′N, 136°30′W, 2800 ft., 11.VII.1982 (D.M. Wood); 8 males, km 155, Dempster Hwy., 22.VI–2.VII.1982 (D.M. Wood). ALBERTA: 1 male, Sulfur Mt., Banff, 7200 ft., 28.VII.1967 (J.R. Vockeroth). In C.N.C.; Calif. Acad. Sci.; U.S.N.M.; B.M.(N.H.); Zool. Inst., Leningrad; coll. T. Nielsen, Sandnes.



MAP 29. Distribution of *Platycheirus quadratus* (Say).

Distribution. Victoria Island, Yukon Territory, Alberta (7200 ft.) (Map 34). Y.T., VI, VII; Alta., VII.

Specimens Examined. Canada, 16 ♂♂.

Platycheirus quadratus (Say)
(Fig. 44; Map 29)

Scaeva quadrata Say, 1823, p. 90.
Platycheirus quadratus: Williston, 1882, p. 309.
Syrphus fuscanipennis Macquart, 1855, p. 115.

Length 7.1–9.1 mm.

Male. Similar to that of *immarginatus*, differing as follows: First flagellomere very narrowly orange below at base. Thoracic hairs almost entirely pale, anterior hairs on lower part of katepisternum black, stiff; hairs of posterior part of anepisternum long, dense, uniform, with crinkly apices; hairs of anepimeron and of upper part of katepisternum similar but shorter. Legs coloured as in pale specimens of *immarginatus*. Fore leg (Fig. 44*a*): femur with posterior subbasal tuft of long wavy closely appressed white hairs, otherwise with short yellow hairs; tibia with posterior margin straight, anterior margin irregular; 1st tarsomere subtriangular, only slightly longer than wide; 2nd to 4th tarsomeres only slightly narrower than 1st, about twice as wide as long. Mid leg (Fig. 44*f, i*): femur posteroventrally on basal half with dense tuft of many strong setose hairs, those near base black, following hairs orange and slightly longer than femoral diameter; third quarter of femur with shorter and more erect orange setose hairs, fourth quarter with long fine wavy black hairs; anteroventrally on basal three-quarters with short fine black hairs, on apical quarter with long fine wavy black hairs; tibia rather strongly broadened and depressed, with anterior margin curved and posterior margin nearly straight, with dense erect crinkly black and yellow hairs on basal two-thirds of ventral surface, the hairs anteroventrally near base at least 3 times as long as tibial diameter; 1st tarsomere broadened and rather strongly depressed, at ¼ its length as wide as apex of tibia. Abdomen as in paler specimens of *immarginatus*.

Female. Not distinguishable from those of several similar species.

Type Specimens. *Scaeva quadrata* Say. Type locality: United States. Type specimens almost certainly lost.

Scaeva fuscanipennis Macquart. Type locality: Baltimore, MD. In Bigot Coll., Hope Museum, Oxford, above label in Bigot's hand "P. fuscanipennis male, *Syrphus quadratus* Say, America. Boreal. Macq." are 2 male *Platycheirus* (syntypes) and 3 female *Platycheirus* (not syntypes). One male without abdomen, with label in Macquart's hand "Syrphus fuscanipennis male Macq. sp.nov.", is of *quadratus*; it is here designated as lectotype and has been so labelled. The fore leg of this specimen was figured by Verrall (1901). The other male, with abdomen, is of another species; it has been labelled as a paralectotype.

Distribution. Southern Canada, south to California, New Mexico, and Florida (Map 29). B.C., IV, V, VII; Ont., Que., V–VIII.

Specimens Examined. Canada, 146 ♂♂; U.S.A., 743 ♂♂.

Biology. Heiss (1939) reared larvae in the laboratory on *Myzus persicae*. Adults have been swept from *Carex* on a marshy river shore in Ontario.

Platycheirus rosarum (Fabricius), comb.nov.

(Figs. 82, 88; Map 30)

Syrphus rosarum Fabricius, 1787, p. 341.
Pyrophaena rosarum: Schiner, 1860, p. 213.
Pyrophaena rosarum var. *duplicata* Fluke, 1922, p. 228. **syn.nov.**

Length 7.4–9.1 mm.

Male. Similar to that of *granditarsis*, differing as follows: Face slightly receding, with smaller tubercle. Antenna usually with 1st flagellomere orange to orange-brown below. Wing sometimes with faint postmedian cloud on anterior half. Fore and mid femora yellow on about apical half; fore and mid tibiae and tarsi yellow; hind tibia with basal third and sometimes narrow apex yellow; hind tarsus yellow with dorsal surface of 1st tarsomere, and sometimes of last 1 or 2 tarsomeres, dark brown. Legs slender, without distinctive hairs or bristles; 1st tarsomere of hind leg about 6 times as long as its greatest depth. Abdomen (Fig. 82) mostly black; tergites 3 and 4 each with a pair of yellow posteriorly rounded lateral spots on anterior margin. Sternites black, 3 and 4 each with broad anterior yellow band. Surstylus (Fig. 88*b*) without distinct dorsobasal lobe. Paramere (Fig. 88*c*) with slender base and well-separated long slender spine. Aedeagus (Fig. 88*d*) with strong subbasal dorsal lobe.

Female. Frons shining except for 2 very small silver pruinose lateral spots at ⅔ its length. Wing cloud often more distinct and slightly larger. Tarsi distinctly wider than in male. Markings of tergites less clearly defined than in male and yellow-orange rather than yellow. Tergite 2 black or with a pair of rounded yellow spots which may be confluent medially; tergite 3 often with spots confluent and sometimes covering most of tergite.

Type Specimens. *Syrphus rosarum* Fabricius. Type locality: Denmark. Type male in Univ. Zool. Mus., Copenhagen; examined by me.

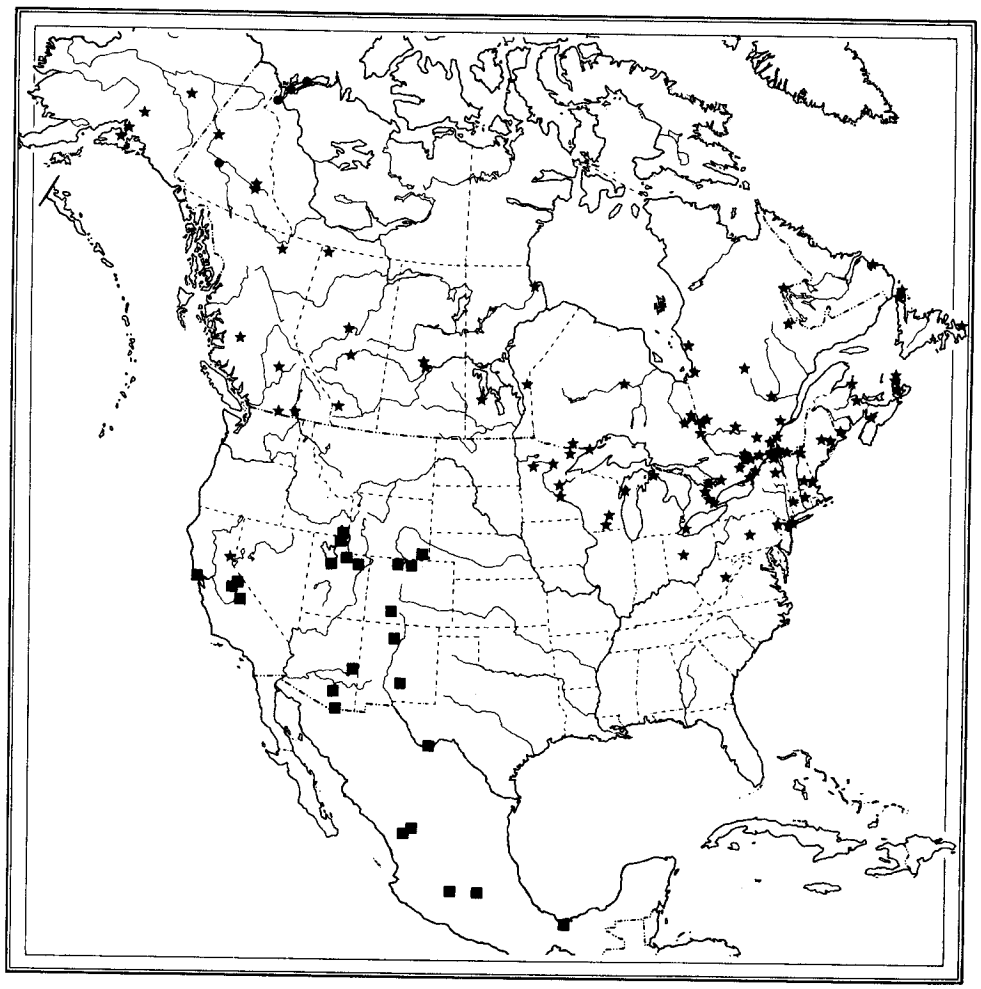
Pyrophaena rosarum var. *duplicata* Fluke. Type locality: Wisconsin. Syntypes presumably in A.M.N.H.

Distribution. Alaska, Canada, south to northern California and West Virginia (Map 30); Europe; Siberia*. B.C., VII; Ont., Que., V–VIII.

Specimens Examined. Alaska, 4 ♂♂; Canada, 210 ♂♂, 295 ♀♀; U.S.A., 21 ♂♂, 37 ♀♀; Europe, 5 ♂♂, 2 ♀♀.

Biology. The species is abundant in sphagnum bogs.

Discussion. Specimens with the colour pattern described by Fluke as var. *duplicata* intergrade with the typical form.



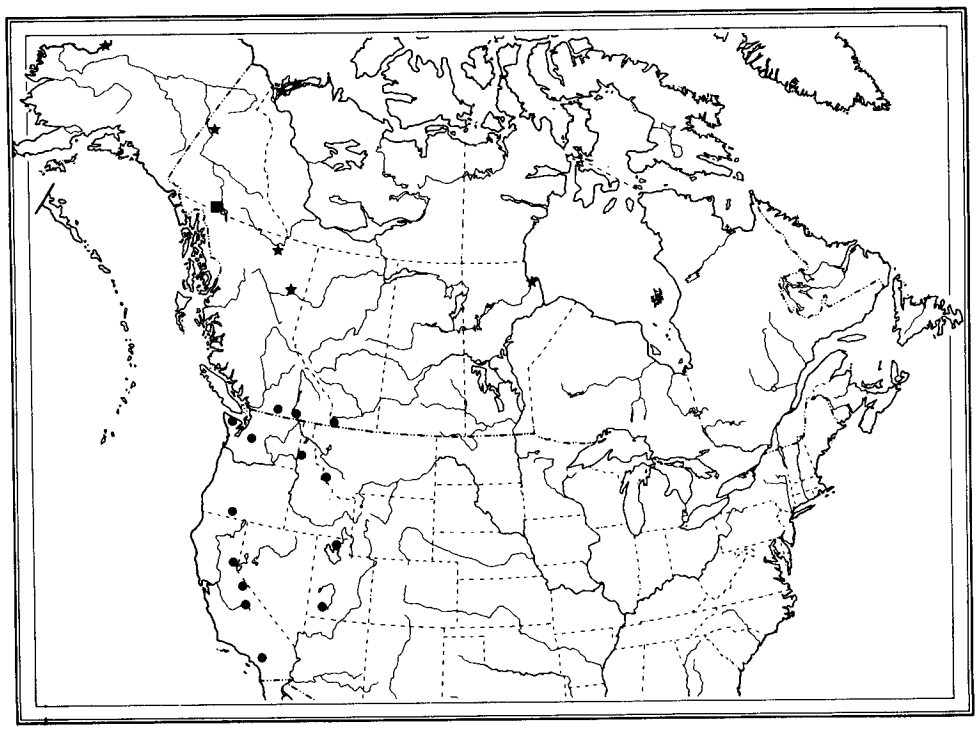
MAP 30. Distribution of *Platycheirus rosarum* (Fabricius) (★), of *P. rufigaster* sp.nov. (●), and of *P. spinipes* sp.nov. (■).

Platycheirus rufigaster sp.nov.

(Figs. 81, 87; Map 30)

Length 7.4–9.1 mm.

Male. Similar to that of *granditarsis*, differing as follows: Face slightly more pruinose. Antenna with 1st flagellomere red-orange below. Thorax, especially pleura, more strongly shining; hairs of disc of scutum, and of scutellum, mostly black. Legs black, slender, without distinctive hairs or bristles; 1st tarsomere of hind leg about 5 times as long as its greatest depth. Abdomen (Fig. 81): tergite 2 black; tergites 3 and 4 yellow-orange with median line and narrow to broad posterior margin black, the black areas sometimes poorly defined; tergite 5 yellow-orange. Sternites 3–5 yellow-orange, other sternites black. Surstylus (Fig. 87*b*) suboval, without basal lobe. Paramere (Fig. 87*c*) with 2 long strong spines and 1 weak slender spine. Aedeagus (Fig. 87*d*) with heavy blunt dorsal subbasal lobe and with strong ventral spicules on apical half.



MAP 31. Distribution of *Platycheirus rufimaculatus* sp.nov. (●), of *P. setitarsis* sp.nov. (★), and of *P. sabulicola* sp.nov. (■).

Female. Frons shining except for 2 small silver pruinose lateral spots at ⅔ its length. Base of fore and mid tibiae obscurely yellow; fore tarsus distinctly wider than in male. Tergite 1 shining black; lateral margin of tergite 2 obscurely blackish, tergites otherwise yellow-orange. Sternite 1 black, other sternites yellow-orange.

Type Specimens. Holotype male: NORTHWEST TERRITORIES, 21 mi. E Tuktoyaktuk, 25.VII.1971 (D.M. Wood). C.N.C. Type No. 17280. Paratypes (8 males, 3 females): YUKON TERRITORY: 1 female, Minto Landing Terr. Cpgd. NORTHWEST TERRITORIES: 8 males with same data as holotype but dates from 2–21.VII.1971; 1 female, Reindeer Depot, Mackenzie Delta, 19.VII.1948 (J.R. Vockeroth); 1 female, Ft. McPherson, 1.VII.1957 (S.D. Hicks). In C.N.C.; Calif. Acad. Sci.; U.S.N.M.; B.M.(N.H.); coll. T. Nielsen, Sandnes.

Distribution. Northwestern Canada (Map 30). N.W.T., VII.

Specimens Examined. Canada, 9 ♂♂, 3 ♀♀.

Platycheirus rufimaculatus sp.nov.
(Map 31)

Length 6.8–8.7 mm.

Male. Very similar to that of *concinnus*, differing as follows: Thoracic hairs very short, the longest scutellar hairs about ¼ as long as arista. Wing with cell c bare on basal eighth to half and cell bm bare or nearly so on basal quarter to two-thirds. Fore and mid femora usually brown to black on about basal third, sometimes mostly orange; hind femur brown to black on about basal half to two-thirds; tibiae orange; tarsi orange, sometimes

partly or entirely brown above. Fore and mid femora with posterior hairs much shorter than femoral diameter. Markings of tergites 3 and 4, and usually of tergite 2, with background partly dull orange, the orange areas very variable in size; tergite 5 sometimes with a pair of obscure orange basal submedian spots. Terminalia as in *concinnus* (Fig. 92).

Female. Very similar to that of *concinnus*, differing as follows: Wing with microtrichia as in male of *rufimaculatus*. Femora usually entirely orange or orange-brown, sometimes darkened basally as in *concinnus*. Tergites with orange markings as in male of *rufimaculatus* but usually more extensive; orange spots of tergite 5 sometimes distinct.

Type Specimens. Holotype male: CALIFORNIA, Tioga Pass-Hall Area site, Mono Co., 4.VII.1969, on *Arabis* sp. (A.R. Moldenke). C.N.C. Type No. 17281. Paratypes: 18 males, 17 females, from localities indicated on Map 31. In C.N.C.; Calif. Acad. Sci.; Calif. Dept. Agric.; Dayton Mus.; Fla. St. Coll. Arthr.; Kans. St. Univ.; Oreg. St. Univ.; U.S.N.M.; Univ. Ark.; Univ. B.C.; Univ. Mich.; Utah St. Univ.; B.M.(N.H.); coll. T. Nielsen, Sandnes.

Distribution. Southwestern Canada, south to California and Utah (9000 ft.) (Map 31). B.C., VI, VII.

Specimens Examined. Canada, 4 ♂♂, 2 ♀♀; U.S.A., 15 ♂♂, 15 ♀♀.

Discussion. As the orange abdominal markings are variable in size it is possible that they may be absent; if this occurs in a female it would probably be indistinguishable from those of *concinnus*. Males of the two species should always be distinguishable because of the difference in length of thoracic hairs.

Platycheirus russatus sp.nov.
(Map 20)

Length 7.8–8.8 mm.

Male. Very similar to that of *rufimaculatus* sp.nov., differing as follows: Face with pruinosity slightly more dense and more silvery. Pleura slightly more pruinose; katepisternum between upper and lower patches of hair weakly and almost uniformly pruinose. Fore and mid femora with anterior surface mostly orange-brown, with most of posterior surface darkened. Tergite 1 black; tergite 2 red-orange with anterior margin and posteriorly narrowed lateral margins black; tergites 3–5 entirely red-orange. Terminalia as in *concinnus* (Fig. 92).

Female. Unknown.

Type Specimens. Holotype male: CALIFORNIA, Riverside, 12.II.1928 (Timberlake), on *Salix lasiolepis*. In Univ. Calif., Riverside. Paratypes (3 males): CALIFORNIA: same data as holotype but 20.II.1927; Santa Ana River, Riverside, 29.VI.1965 (J. Bath *et al.*); Colton, 18.X.1909 (G.R. Pilate). In C.N.C.; Calif. Acad. Sci.; Univ. Calif., Riverside.

Distribution. Southern California (Map 20); II, VI, X.

Specimens Examined. U.S.A., 4 ♂♂.

Platycheirus sabulicola sp.nov.
(Fig. 96; Map 31)

Length 5.2–6.8 mm.

Male. Very similar to that of *confusus*, differing as follows: Median facial stripe narrower, not extending to lower margin, narrowed above and extending scarcely above tubercle. Angle of junction of eyes 90° or slightly less. Notopleural hairs usually mostly or entirely white; prescutellar and basal scutellar hairs usually white; pleural hairs usually entirely white, in one specimen almost all black. Wing membrane clear, extensively bare: cell c trichose on at most apical fifth, cell bm with only a slender patch of microtrichia

near apex, and cell cua_1 bare on entire width at base. Fore and mid tibia with posterior bristles slightly weaker, present only on apical half or slightly more of tibia. Spots of tergites without orange background. Surstylus (Fig. 96) with shorter lobe very small, the longer lobe curved and nearly as broad as base of surstylus.

Female. Very similar to that of *confusus* and perhaps not definitely separable from it; with wing microtrichia as in male of *sabulicola* or slightly less extensive.

Type Specimens. Holotype male: YUKON TERRITORY, Carcross sand dunes, 16–18.VI.1982 (G. & M. Wood). C.N.C. Type No. 19465. Paratypes: 17 males, 10 females, same data as holotype. In C.N.C.; Calif. Acad. Sci.; U.S.N.M.; B.M.(N.H.); Zool. Inst., Leningrad; coll T. Nielsen, Sandnes.

Distribution. Yukon Territory (Map 31); VI.

Specimens Examined. Canada, 18 ♂♂, 10 ♀♀.

Biology. The type series was taken in a sand dune area without visible water, a habitat very different from those of the similar species *confusus* and *obscurus*.

Discussion. The much barer wing and markedly different surstylus, as well as the habitat difference, leave little doubt that *sabulicola* is specifically distinct from *confusus*. The females listed above, taken with males, are undoubtedly of *sabulicola*; the reduction in extent of wing microtrichia distinguishes them from most females of *confusus* (in which cell cua_1 is usually entire trichose), but a few specimens from southwestern Alberta have this cell with a basal bare area so their identity is uncertain. Two males in the C.N.C. (Wrigley, N.W.T., 6.VI.1969 [G.E. Shewell]; Yakow Lake dunes, L. Athabasca, Sask., 21–29.VI.1988 [M. Polak, M. Wood]) agree with specimens of *sabulicola* in other characters but have the surstylus of a slightly different shape; they are not treated as paratypes.

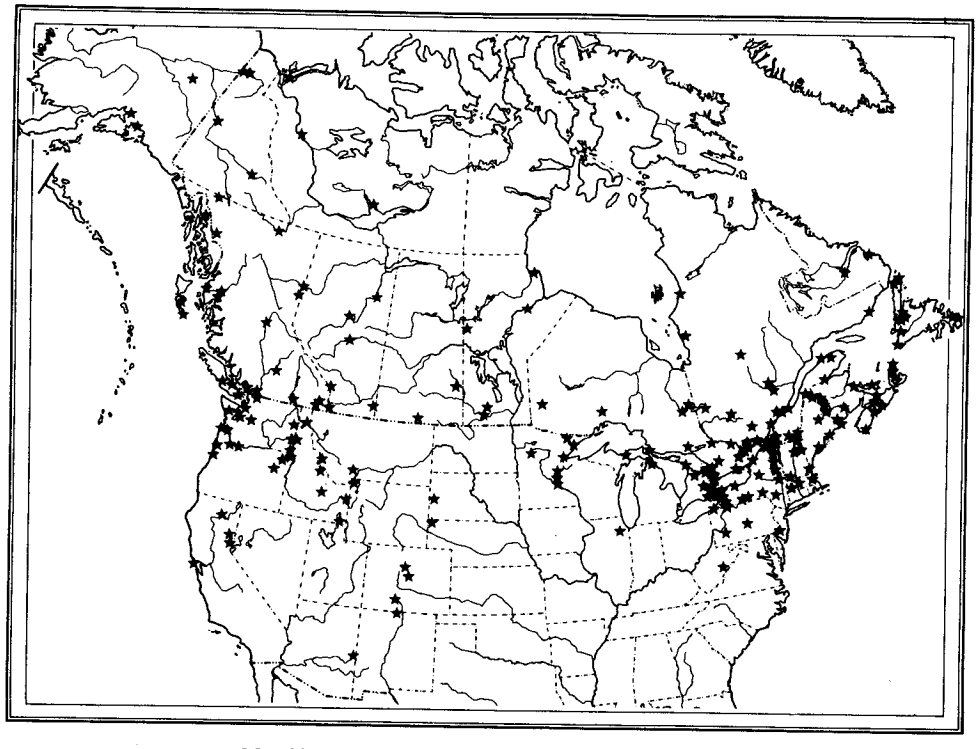
Platycheirus scamboides Curran
(Fig. 51; Map 26)

Platycheirus scamboides Curran, 1927, p. 6.

Length 8.2–9.1 mm.

Male. Similar to that of *immarginatus*, differing as follows: Facial tubercle a little less prominent, entirely pruinose or very slightly shining. First flagellomere usually distinctly orange below on basal two-thirds. Posterior part of anepisternum with hairs rather sparse, uniform, nearly straight; upper part of katepisternum with many hairs. Legs yellow with coxae, a broad ring on each of hind femur and tibia, and 1st and last 2 tarsomeres of hind leg dark brown to black. Fore leg (Fig. 51*a*): ventral surface of fore trochanter with slightly shorter and weaker setae; femur posteriorly without subbasal tuft of white hairs, with rather short yellow hairs and 3 or 4 slightly longer and stronger uniformly spaced black hairs, ventrally with short yellow hairs and on basal half a row of 3 or 4 slightly longer and stronger hairs; tibia with slight constriction on posterior margin at ⅔ its length and with posterior margin of posterapical angle straight rather than curved slightly inward; 1st tarsomere slightly wider and nearly parallel-sided on apical half rather than on apical third. Mid femur (Fig. 51*i*) anteroventrally with a row of short stiff almost entirely pale setae on about apical half, posteroventrally with a row of 3–7 long weak yellow or black bristles on basal half to three-fifths. Mid tibia with very short appressed yellow anteroventral and posteroventral hairs. First tarsomere of hind leg only slightly swollen, about 4.5 times as long as its greatest depth. Abdomen with yellow spots much smaller than shown in Figure 80, those on tergite 2 not reaching anterior or lateral margin, those on tergites 3 and 4 at most ¾ as long as tergite and separated by a black median line about ⅕ as wide as tergite; those of tergite 5 separated by a median black line.

Female. Not distinguishable from those of several similar species.



MAP 32. Distribution of *Platycheirus scambus* (Staeger).

Type Specimen. Type locality: Agricultural College, MI. Holotype male in Ill. State Nat. Hist. Surv. Coll., Urbana; examined by me.

Distribution. Southern Ontario; Wisconsin to Maine, south to North Carolina (Map 26). Ont., V, VI, VIII.

Specimens Examined. Canada, 4 ♂♂; U.S.A., 63 ♂♂.

Discussion. This form may not be specifically distinct from *scambus* but the characters given in the key suggest that two species are present. No intermediate or doubtful specimens have been seen.

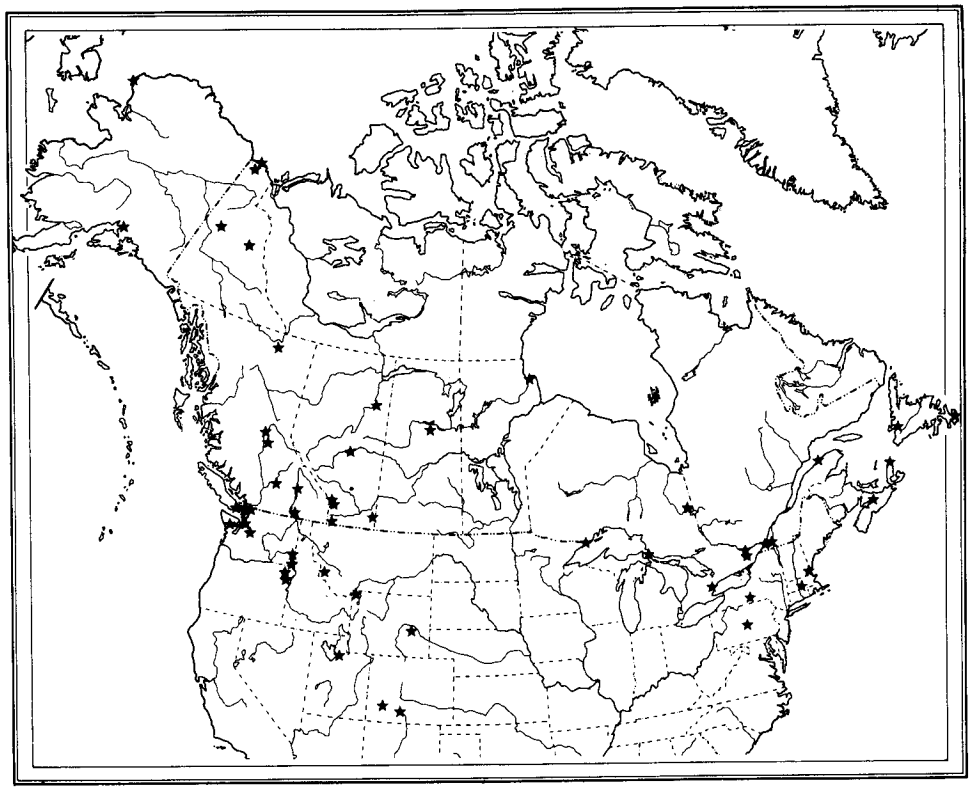
Platycheirus scambus (Staeger)

(Fig. 52; Map 32)

Syrphus scambus Staeger, 1843, p. 325.
Platycheirus scambus: Schiner, 1861, p. 296.
Platychirus chaetopodus Williston, 1887, p. 59.

Length 6.5–9.6 mm.

Male. Similar to *immarginatus* and extremely similar to *scamboides*, differing from the latter as follows: First flagellomere black or obscurely orange below at extreme base. Lower part of katepisternum sometimes with a few of the hairs stiff and black. Fore leg with black hairs of posterior surface slightly longer and stronger, almost bristle-like, and with black hairs of ventral surface slightly but distinctly stronger. Mid femur (Fig. 52) anteroventrally with an irregular row of 3–15 short strong black (or rarely all yellow) setae followed by 1 or 2 long very slender recurved black hairs, posteroventrally with 2–4 long strong black bristles. Mid tibia with short appressed anteroventral and posteroventral hairs



MAP 33. Distribution of *Platycheirus scutatus* (Meigen).

mostly or entirely black. Yellow spots of tergites a little larger, those of tergite 2 reaching or nearly reaching anterior and lateral margins and those of tergites 3 and 4 a little longer and a little less broadly separated medially.

Female. Not distinguishable from those of several similar species.

Type Specimens. *Syrphus scambus* Staeger. Type locality: Denmark. Syntypes presumably in Univ. Zool. Mus., Copenhagen.

Syrphus chaetopodus Williston. Type locality: Washington Territory, U.S.A. Two male syntypes in U.S.N.M. were examined. One, labelled "W.T.", "Acc. 19, 702 Williston", "Type No. 823 U.S.N.M.", and "Platychirus chaetopodus Will" is here designated as lectotype; it has been so labelled. The other specimen, with the first three of these labels, has been labelled as a paralectotype.

Distribution. Alaska, Canada, south to California, New Mexico, and South Carolina* (Map 32); Europe; Siberia. B.C., V–VII, IX; Ont., Que., V–VIII.

Specimens Examined. Alaska, 4 ♂♂; Canada, 482 ♂♂; U.S.A., 278 ♂♂; Europe, 15 ♂♂; Siberia, 1 ♂.

Biology. Specimens were taken in Quebec and Nova Scotia in *Carex* marsh.

***Platycheirus scutatus* (Meigen)**

(Figs. 31, 83; Map 33)

Syrphus scutatus Meigen, 1822, p. 333.
Platycheirus scutatus: Lepeletier and Serville, 1828, p. 513.

Length 6.8–8.7 mm.

Male. Similar to that of *albimanus*, differing as follows: First flagellomere extensively orange below at base, sometimes orange on lower half. Scutum and scutellum with at most a very few black hairs. Lower katepisternal hairs fine, white, very short. Wing with small bare areas at base of cell c and along anterior margin of cell bm. Fore leg (Fig. 31*a*): trochanter near apex of ventral surface with a dense cluster of about 12 rather long stiff pale setae; femur with basal pale tuft of about 5 hairs, the 2 succeeding black tufts more compact, of at least 10 hairs each, and sharply bent preapically, and the rest of the posterior surface with many long strong uniform black hairs decreasing in length toward apex of femur; tibia gradually widened on basal five-sevenths, then strongly widened posteriorly with posteroapical angle broadly rounded, the posterior margin with dense soft mostly black hairs which at ¾ tibial length are about twice as long as tibial width; 1st tarsomere with anterior margin straight, posterior margin oblique at apex, a little wider than fore tibia; 2nd tarsomere as wide as 1st and ⅙ its length; 3rd and 4th tarsomeres each slightly longer than 2nd and successively slightly narrower. Mid leg (Fig. 31*h*): coxa with slender anteroapical spur, projecting ventrally, about ¾ as long as base of coxa and yellow to black in colour; femur with black anteroventral setae finer and less regular and followed by 3 or 4 very slender curved black hairs, with a row of long rather strong black posteroventral hairs; tibia slightly arcuate, slightly broadened on middle half, with very short dense erect fine pale hairs on basal two-thirds of ventral surface and rather long fine dense suberect black hairs on most of posterior to posteroventral surface. First tarsomere of hind leg moderately swollen, about 3.5 times as long as its greatest depth. Spots of tergites submetallic to yellowish, those of tergite 2 small and irregular in outline or sometimes obsolete; those of 3 and 4 subquadrate but slightly longer laterally, about ½ as long as tergite, the former with dense silvery pruinosity anteromedially, the latter with dense silvery pruinosity on most of its surface. Terminalia as in Figure 83.

Female. Not distinguishable from those of several similar species.

Type Specimens. Type locality: Europe (Aachen?). Syntypes in M.N.H.N., Paris (Verrall 1901).

Distribution. Alaska, Canada, south to Colorado, Pennsylvania, and Massachusetts (Map 33); Europe; Siberia; Japan*. B.C., IV–VIII; Ont., Que., VI, VII, IX.

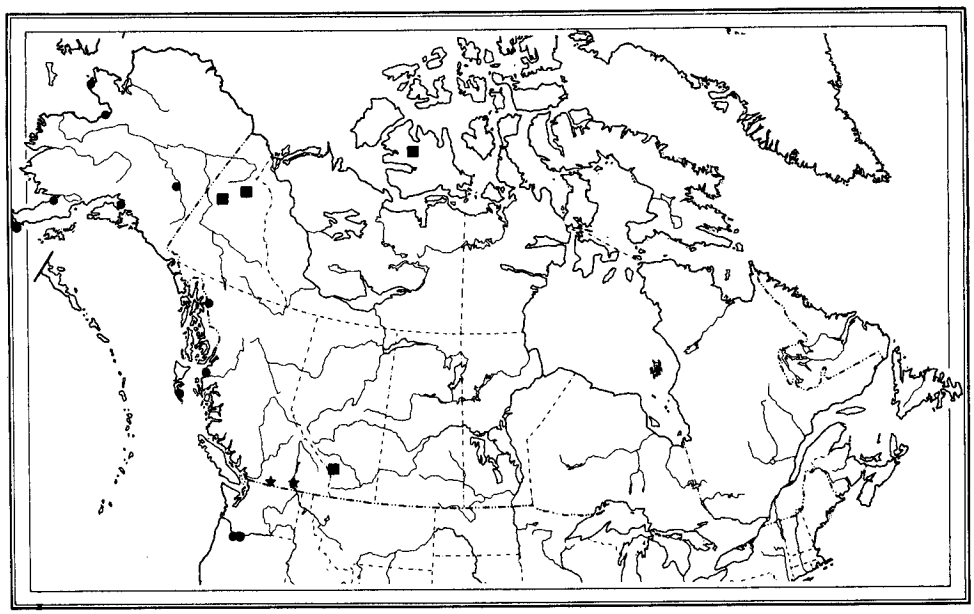
Specimens Examined. Alaska, 3 ♂♂; Canada, 50 ♂♂; U.S.A., 57 ♂♂; Europe, 30 ♂♂; Siberia, 3 ♂♂.

Biology. According to Verrall (1901) the larva "is recorded as having been bred from rotten fungi". This is almost certainly an error. Metcalf (1917) reported that larvae from eggs laid in the laboratory "are — feeding contentedly on these aphids [*Aphis spireacola*]". Láska and Starý (1980) reported three species of aphids as larval hosts in Czechoslovakia.

Platycheirus setipes sp.nov.
(Figs. 45, 72; Map 34)

Length 8.7 mm.

Male. Very similar to that of *hispidipes*, differing as follows: Facial tubercle a little more compressed; facial pruinosity less dense so face appears darker. Hairs of scutum and scutellum mostly black. Hairs of pleura all pale. Wing with very small bare areas; cell bm bare on centre of basal fifth. Knob of halter dark yellow. Legs mostly dark brown to black; apices of femora, fore tibia except anterior and posterior streaks, base and apex of mid tibia, base of hind tibia and fore and mid tarsi yellow or whitish. Fore leg (Fig. 45*a*): femur posteriorly with subbasal tuft of 4 white hairs followed by scattered shorter similar hairs and, on middle third, 3 or 4 long black bristle-like hairs; tibia strongly and abruptly



MAP 34. Distribution of *Platycheirus pullatus* sp.nov. (■), of *P. setipes* sp.nov. (★), and of *P. tenebrosus* Coquillett (●).

broadened posteriorly at ¾ its length, parallel-sided on apical eighth; 1st tarsomere strongly widened on basal third, then parallel-sided to apex; 2nd tarsomere a little wider than long, 3rd tarsomere subquadrate. Mid femur (Fig. 45*i*) with an anteroventral row of about 7 short stout black setae on apical two-thirds, sometimes followed by a long fine curved black hair. Mid tibia at mid length with 1 or 2 strong black posterior hairs about 3 times as long as tibial diameter. Hind tibia with short hairs. Abdomen (Fig. 72): tergites 2–4 each with a pair of large shining blue-grey spots which may extend laterally along the entire margin.

Female. Unknown.

Type Specimens. Holotype male: BRITISH COLUMBIA, Dry Ridge summit, Manning Park, 1830 m, 25.VI.1983 (S.G. Cannings). C.N.C. Type No. 17283. Paratype male: BRITISH COLUMBIA, Robson, 13.VIII.1964 (H.R. Foxlee). In Univ. B.C.

Distribution. Southern British Columbia (Map 34); VI, VIII.

Specimens Examined. Canada, 2 ♂♂.

Platycheirus setitarsis sp.nov.
(Figs. 61, 86; Map 31)

Length 7.1–8.2 mm.

Male. Very similar to that of *carinatus*, differing as follows: Thoracic hairs almost entirely black, pale only on katepimeron and on lower part of katepisternum. Knob of halter brown to black. Fore femur with 4–8 black ventral setae on basal three-eighths, all of nearly equal length and all shorter than femoral diameter; fore tibia with posterior bristles not more closely spaced near apex; 1st tarsomere with only very short hairs. Mid femur with ventral setae not longer than femoral diameter; mid tibia with posterior bristles less strongly appressed; 1st tarsomere of mid leg with 3 more-or-less evenly spaced stiff black anteroventral setae the last of which is at apex and all of which are at least as long

as diameter of tarsomere (Fig. 61). Spots of tergites subrectangular, those of 3 and 4 almost ½ as long as tergites, without orange-brown background. Paramere (Fig. 86) sickle-shaped.

Female. Not distinguishable from those of several similar species.

Type Specimens. Holotype male: NORTHWEST TERRITORIES, Reindeer Depot, Mackenzie Delta, 28.VI.1948 (J.R. Vockeroth). C.N.C. Type No. 17282. Paratypes (23 males): ALASKA: Cape Thomson; Unalakleet. YUKON TERRITORY: North Fort Pass, Ogilvie Mts. NORTHWEST TERRITORIES: Reindeer Depot; 21 mi. E Tuktoyaktuk; 30 mi. E Tuktoyaktuk. BRITISH COLUMBIA: Summit L., mi. 392 Alaska Hwy., 5000 ft.; Summit of Pink Mt. MANITOBA: Warkworth Cr. nr. Churchill. In C.N.C.; Calif. Acad. Sci.; U.S.N.M.; Univ. B.C.; Wash. St. Univ.; B.M.(N.H.); Zool. Inst., Leningrad; coll. J. Lucas, Rotterdam; coll. T. Nielsen, Sandnes.

Distribution. Alaska, northwestern Canada (Map 31). B.C., VI, VII.

Specimens Examined. Alaska, 8 ♂♂; Canada, 16 ♂♂.

Platycheirus spinipes sp.nov.

(Map 30)

Length 5.7–7.1 mm.

Male. Very similar to that of *stegnus*, differing as follows: Face slightly narrower and with slightly finer punctures; shining median black stripe more extensive, usually reaching lower margin of face and extending above upper limit of tubercle. Scutellum with black hairs at least posteriorly.

Female. Very similar to that of *stegnus*, differing in head characters as do the males of the two species.

Type Specimens. Holotype male: NEW MEXICO, Cloudcroft, 8500–9000′, 6.IX.1963 (H.V. Weems, Jr.). In coll. H.V. Weems, Jr., Gainesville, FL. Paratypes: 58 males, 59 females (21 ♂♂ and 39 ♀♀ with same data as holotype) from localities indicated on Map 30. In C.N.C.; Calif. Acad. Sci.; Kans. St. Univ.; Towson St. Univ.; U.S.N.M.; Univ. Minn.; Utah St. Univ.; Yale Univ.; B.M.(N.H.); Zool. Inst., Leningrad; coll. T. Nielsen, Sandnes; coll. H.V. Weems, Gainesville.

Distribution. California to Wyoming, south to southern Mexico (in Durango at 8000 ft. and 9000 ft.) (Map 30). CO, VIII, IX.

Specimens Examined. U.S.A., 53 ♂♂, 59 ♀♀; Mexico, 6 ♂♂.

Platycheirus squamulae (Curran), comb.nov.

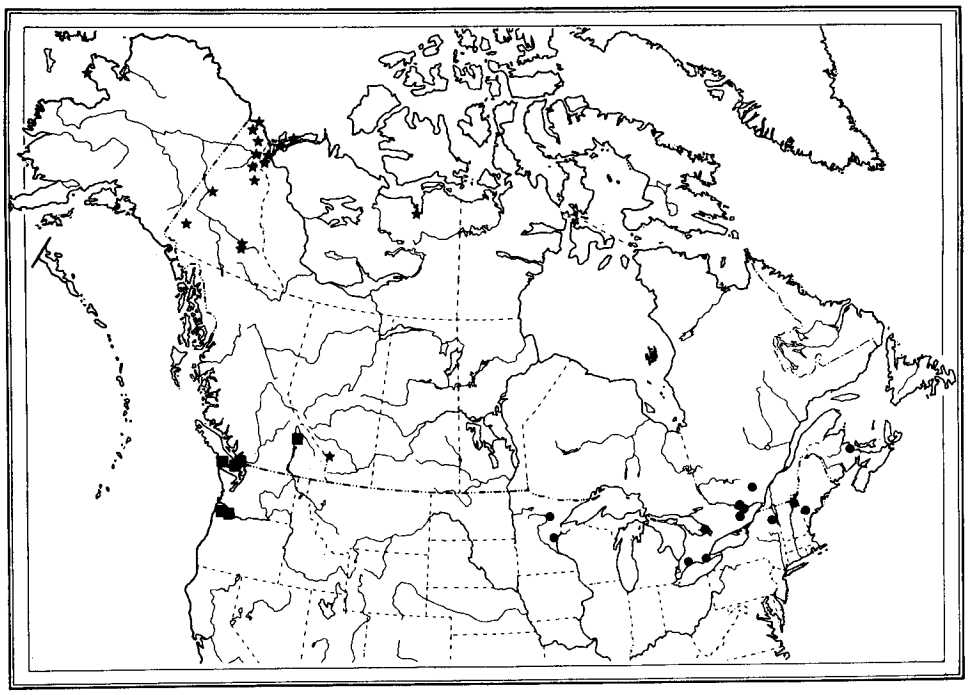
(Fig. 58; Map 35)

Melanostoma squamulae Curran, 1922, p. 275.
Carposcalis squamulae: Fluke, 1958, p. 265.

Length 7.3–7.9 mm.

Male. Very similar to that of *confusus*, differing as follows: Thoracic hairs almost entirely black, only those of katepimeron pale. Wing membrane distinctly brownish, entirely trichose. Fore tibia with posterior bristles longer and stronger, especially on basal part, the longest bristles almost ½ as long as tibia and beginning very near base of tibia (Fig. 58); mid tibia with bristles as long as those of fore tibia but slightly weaker. First tarsomere of hind leg a little more swollen, about 4 times as long as its greatest depth. Lateral hairs of tergites almost all black, strong and long, the longest on tergite 3 at least ½ as long as apical width of tergite. Surstylus as in *confusus* (Fig. 94).

Female. Very similar to that of *confusus*, differing as follows: Scutum sublaterally and scutellum on disc with some black hairs. Wing membrane more distinctly brownish; cell c sometimes with very small bare area at base, cell bm entirely trichose.



MAP 35. Distribution of *Platycheirus squamulae* (Curran) (■), of *P. thompsoni* sp.nov. (●), and of *P. yukonensis* sp.nov. (★).

Type Specimen. Type locality: Victoria, B.C. Holotype male in C.N.C.; examined by me.

Distribution. Alaska*, British Columbia, Oregon (Map 35). B.C., IV–VI.

Specimens Examined. Canada, 7 ♂♂, 4 ♀♀; U.S.A., 2 ♂♂.

Discussion. This form may be conspecific with *confusus*; see Discussion under that species.

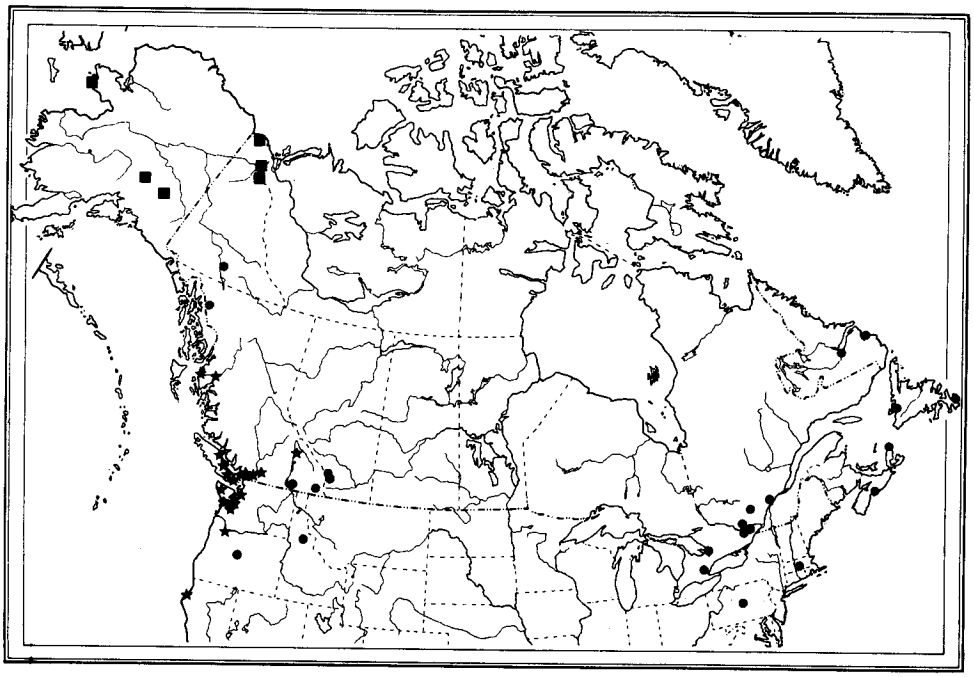
Platycheirus stegnoides sp.nov.
(Fig. 59; Map 36)

Length 7.7–8.2 mm.

Male. Very similar to that of *hesperius*, differing as follows: Face with more distinct punctures, with only tubercle shining (as in Fig. 1). Upper half of pleura with many back hairs. Wing membrane entirely trichose. Fore tibia with about 11 slightly longer and weaker posterior bristles, those near tibial base very short (Fig. 59); mid tibia with about 5 long posterior bristles which are only slightly weaker than those of fore tibia. First tarsomere of hind leg less strongly swollen, about 4.5 times as long as its greatest depth. Spots of tergites submetallic with rather dense shining silver-grey pruinosity.

Female. Face and wing as in male; frons not distinctly shining above antennae, otherwise as in female of *hesperius*.

Type Specimens. Holotype male: BRITISH COLUMBIA, Lakelse L. bog nr. Terrace, 14.VI.1960 (C.H. Mann). C.N.C. Type No. 17284. Paratypes: 59 males, 21 females from localities indicated on Map 36. In C.N.C.; A.M.N.H.; Royal B.C. Mus.; Calif. Acad. Sci.; Dayton Mus.; Fla. St. Coll. Arthr.; Ohio St. Univ.; Oreg. St. Univ.; U.S.N.M.;



MAP 36. Distribution of *Platycheirus stegnoides* sp.nov. (★), of *P. subordinatus* Becker (■), and of *P. thylax* Hull (●).

Univ. B.C.; Univ. Calif. Riverside; B.M.(N.H.); Zool. Inst., Leningrad; coll. J. Lucas, Rotterdam; coll. T. Nielsen, Sandnes.

Distribution. British Columbia south to northern California (Map 36). B.C., VI–VIII.

Specimens Examined. Canada, 30 ♂♂, 12 ♀♀; U.S.A., 30 ♂♂, 9 ♀♀.

Platycheirus stegnus (Say), comb.nov.

(Fig. 1; Map 37)

Syrphus stegnus Say, 1829, p. 163.
Carposcalis stegnus: Enderlein, 1938, p. 199.
Melanostoma tigrinum Osten Sacken, 1877, p. 323.

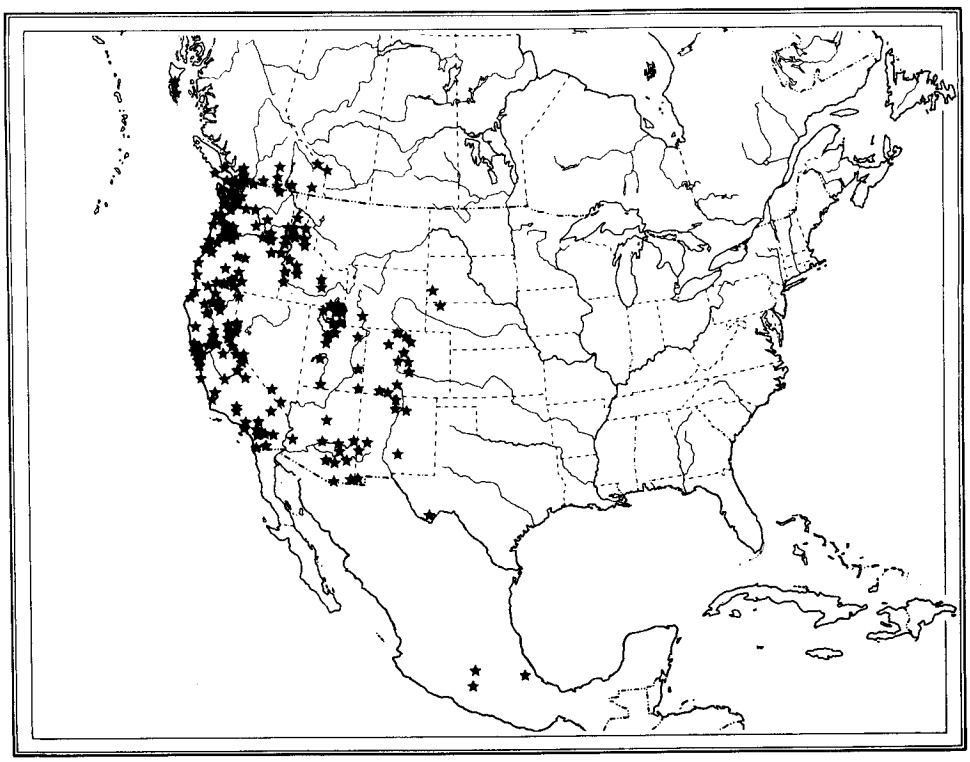
Length 6.8–9.1 mm.

Male. Very similar to that of *stegnoides*, differing as follows: Face with slightly larger punctures (Fig. 1). Antenna with 1st flagellomere more extensively orange below. Scutal hairs almost entirely pale; scutellar hairs entirely pale or black only on margin; pleural hairs entirely pale. Wing membrane extensively bare on basal half; cell c bare, cell bm bare or with a very few microtrichia near apex..

Female. Very similar to that of *stegnoides* but with slightly larger facial punctures, with entirely white thoracic hairs, and with the wing extensively bare as in male of *stegnus*.

Type Specimens. *Syrphus stegnus* Say. Type locality: Mexico. Type(s) almost certainly lost.

Melanostoma tigrinum Osten Sacken. Type locality: Saucelito, CA. Two male syntypes in M.C.Z. examined. One, labelled "Saucelito, Cal. April 2.0. Sack.", "Osten



MAP 37. Distribution of *Platycheirus stegnus* (Say).

Sacken Coll.", "Type 873", "Melanostoma tigrina O.S.", and "Lectotype Melanostoma tigrina O.S. Desig. Thompson 1979", is here designated as lectotype; it has been so labelled. The other male, from Yosemite, CA, has been labelled as a paralectotype.

Distribution. Southwestern Canada, east to Nebraska, south to California and Mexico (Map 37).

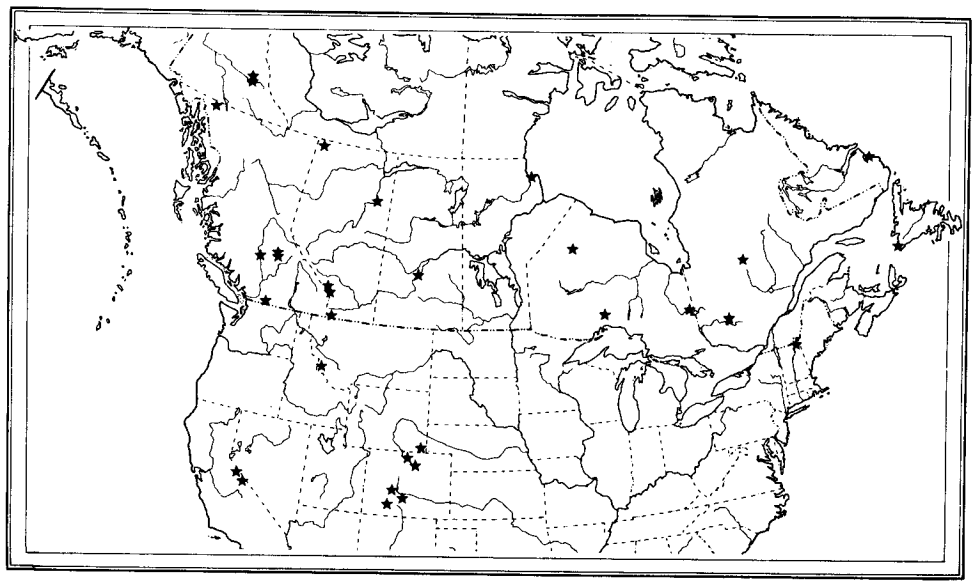
Specimens Examined. Canada, 28 ♂♂, 53 ♀♀; U.S.A., 563 ♂♂, 505 ♀♀; Mexico, 1 ♂, 2 ♀♀.

Biology. Larvae were reared in the laboratory on four species of aphids and developed without diapause but adults were smaller than usual; the author suggested that the aphids were perhaps not the normal hosts or that the larvae perhaps are normally partly phytophagous (Davidson 1922). I reared adults from eggs laid in the laboratory; the larvae fed on *Myzus persicae*. The adults were rather small; I would attribute this to laboratory conditions. Adults were taken in British Columbia around the edges of moderately dry mixed forest.

Platycheirus striatus sp.nov.
(Map 38)

Length 7.3–11.0 mm.

Male. Very similar to that of *luteipennis*, differing as follows: Face more densely pruinose, with only tubercle shining, without shining median stripe extending to lower facial margin or well above tubercle, with several striae, grooves, or ridges converging above on upper median part of face but usually without distinct median keel. Antenna



MAP 38. Distribution of *Platycheirus striatus* sp.nov.

with pedicel extensively orange-brown below. Scutum and scutellum usually a little less brassy, the hairs white to pale yellow and longer, the longest scutellar hairs subequal in length to arista. Pleural hairs slightly longer, white to pale brown. Wing with cell c entirely trichose or bare only on about basal tenth, with cell bm entirely trichose or with indistinct bare median line near base, and with cell cu*p* entirely trichose. Legs with femora more extensively blackened and with tarsi darker above. Longer femoral hairs at least as long as femoral diameter. Abdomen with markings of tergites metallic bluish, brassy, or coppery. Terminalia very similar to those of *luteipennis* (Fig. 93) but surstylus with basal lobe broader and bluntly rounded basally, and paramere with spine more widely separated from base.

Female. Very similar to that of *luteipennis*, differing as follows: Face with tubercle shining but without shining median stripe. Thoracic hairs usually white to yellowish rather than brassy. Wing with cell c bare only at extreme base and cell bm trichose with narrow median bare stripe on about basal two-thirds. Legs slightly darker, as in male of *striatus*. Abdomen distinctly more robust. (This description is based on females collected with males; they have not been treated as paratypes.)

Type Specimens. Holotype male: COLORADO, Nederland Science Lodge, 9500 ft., 1.VII.1961 (B.H. Poole). C.N.C. Type No. 17285. Paratypes: 64 males from localities indicated on Map 38. In C.N.C.; A.M.N.H; Calif. Acad. Sci.; Dayton Mus.; Fla. St. Coll. Arthr.; Memorial Univ. St. John's; M.C.Z.; U.S.N.M.; Univ. B.C.; Univ. Guelph; Univ. Minn.; Utah St. Univ.; B.M.(N.H.); Zool. Inst., Leningrad; coll. K. Barber, Sault. Ste. Marie; coll. F.D. Fee, State College; coll. J. Lucas, Rotterdam; coll. T. Nielsen, Sandnes.

Distribution. Canada, south to California, Colorado, and New Hampshire (Map 38). B.C., VI, VII; Ont., Que., VI, VII.

Specimens Examined. Canada, 38 ♂♂; U.S.A., 27 ♂♂.

Platycheirus subordinatus Becker
(Fig. 17; Map 36)

Platycheirus subordinatus Becker, 1915, p. 60.

Length 6.2–7.3 mm.

Male. Very similar to that of *discimanus*, differing as follows: Face slightly more strongly produced forward below, at least weakly pruinose except on tubercle. Thoracic hairs white to very pale brown. Knob of halter pale brown to dark brown. Mid tarsus black. Fore leg (Fig. 17*a*): trochanter with fine pale hairs ventrally, without black setulae; tibia with posterior hairs sparse, strong, and nearly straight; 1st tarsomere rather variable, from 1.5 to 2.5 times as long as wide; 2nd tarsomere subquadrate to 1.5 times as wide as long. Mid tibia (Fig. 17*k*) with anteroventral hairs of basal half at most 3 times as long as tibial diameter, with dense fine hairs on basal half to two-thirds of posterior surface, the longest 3–4 times as long as tibial diameter. Mid tarsus cylindrical. First tarsomere of hind leg slightly to moderately swollen, 3.5–4 times as long as its greatest depth. Tergite 2 with pale spots obscure or absent; tergites 3 and 4 with spots distinct, varying from densely grey pruinose with only a very faint yellowish background to distinctly yellow to dull orange with weak pruinosity.

Female. Not distinguishable from those of several similar species.

Type Specimens. Type locality: Tundra of River Kara, Polar Urals, U.S.S.R. Syntypes presumably in Zool. Mus., Leningrad.

Distribution. Alaska, Yukon Territory (Map 36); northern Europe; Siberia. Alaska, Y.T., VI, VII.

Specimens Examined. Alaska, 5 ♂♂; Canada, 6 ♂♂; Europe, 2 ♂♂; Siberia, 2 ♂♂.

Discussion. The 15 available males show more variation than is usual in one species, particularly in the shape of the fore tarsus and the markings of the abdomen. It is possible that more than one species is represented among these specimens.

Platycheirus tenebrosus Coquillett
(Figs. 46, 73; Map 34)

Platycheirus tenebrosus Coquillett, 1900, p. 428.

Length 5.7–7.8 mm.

Male. Similar to dark specimens of *immarginatus*, differing as follows: Face with very sparse grey pruinosity, nearly black. Thoracic hairs extensively black, those of anepisternum and anepimeron usually all black; upper part of katepisternum without hairs, lower part with many stiff black hairs and a few fine pale hairs. Legs mostly black, the following areas yellow to yellow-orange: fore femur except posterior stripe, fore tibia except posterior spot at mid length, fore tarsus, narrow apex of mid and hind femur, base and apex of mid tibia, mid tarsus (upper surface often brown especially on last tarsomere), and narrow base of hind tibia. Fore leg (Fig. 46): trochanter with short pale or black setae on ventral surface; femur with posterior subbasal tuft of long wavy white hairs, otherwise with fine black or rarely yellow hairs; tibia moderately and uniformly broadened on basal three-fifths, then strongly broadened especially posteriorly and slightly narrowed apically, with posteroapical angle short and broad; 1st tarsomere rather strongly broadened on basal third to half, then very slightly narrowed to apex, about 1.33 times as long as wide; 2nd tarsomere subquadrate. Mid femur sometimes with a few weak black or pale anteroventral setae near mid length, otherwise with mostly black hairs a few of which, on the posteroventral surface, are stronger than the others. Mid tibia almost cylindrical, without conspicuous hairs. First tarsomere of hind leg moderately to rather strongly swollen, from about 3.5 to 5 times as long as its greatest depth. Abdomen (Fig. 73): tergite 2 with bright to dull yellow spots of very variable size which do not reach the margins and may be

almost obsolete; tergite 3 with rounded bright yellow or yellow-orange spots which do not reach the margins and are from ½ to ¾ as long as the tergite; tergite 4 usually with similar but smaller spots, rarely with spots obsolete; tergite 5 without distinct pale spots, with anterolateral angles submetallic.

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: Popof I., AK. One male syntype in U.S.N.M. examined; it is labelled "Popof Island Alaska July 8'99", "Harriman Expedition '99 T. Kincaid Collector", "Type No. 5238 U.S.N.M.", and "Platychirus tenebrosus Coq."; it is here designated as lectotype and has been so labelled.

Distribution. Alaska, British Columbia, Oregon (Map 34). B.C., V, VI, VIII.

Specimens Examined. Alaska, 48 ♂♂; Canada, 6 ♂♂; U.S.A., 2 ♂♂.

Platycheirus thompsoni sp.nov.

(Figs. 35, 70; Map 35)

Length 7.8–9.0 mm.

Male. Very similar to that of *nodosus*, differing as follows: Fore and mid tarsi entirely yellow. Fore leg (Fig. 35): femur with single subbasal tuft which may be preceded by a single long pale hair, the hairs of the tuft dark yellow with slender dark brown to black lanceolate apices; tibia slightly narrower; 1st tarsomere about 1.5 times as long as wide. Mid femur with posterior hairs about as long as femoral diameter; mid tibia without long anteroventral hairs. Yellow-orange spots of tergite 2 reaching anterior margin (Fig. 70).

Female. Not distinguishable from those of several similar species.

Type Specimens. Holotype male: QUEBEC, Beechgrove, 27.IV.1984 (B.M. Bissett). C.N.C. Type No. 17287. Paratypes: 30 males from localities indicated on Map 35. In C.N.C.; Calif. Acad. Sci.; N.Y. St. Mus.; U.S.N.M.; Univ. Minn.; B.M.(N.H.); Zool. Inst. Leningrad; coll. F.D. Fee, State College; coll. T. Nielsen, Sandnes.

Distribution. Southeastern Canada, Minnesota to Maine (Map 35). Ont., Que., V–VII.

Specimens Examined. Canada, 24 ♂♂; U.S.A., 7 ♂♂.

Biology. The holotype and 11 paratypes were swept in a wet *Carex–Salix* marsh with many specimens of *P. immarginatus* and a few of *P. scambus*.

Etymology. The species is named for my friend and colleague F.C. Thompson, an outstanding student and cataloguer of Syrphidae.

Platycheirus thylax Hull

(Fig. 18; Map 36)

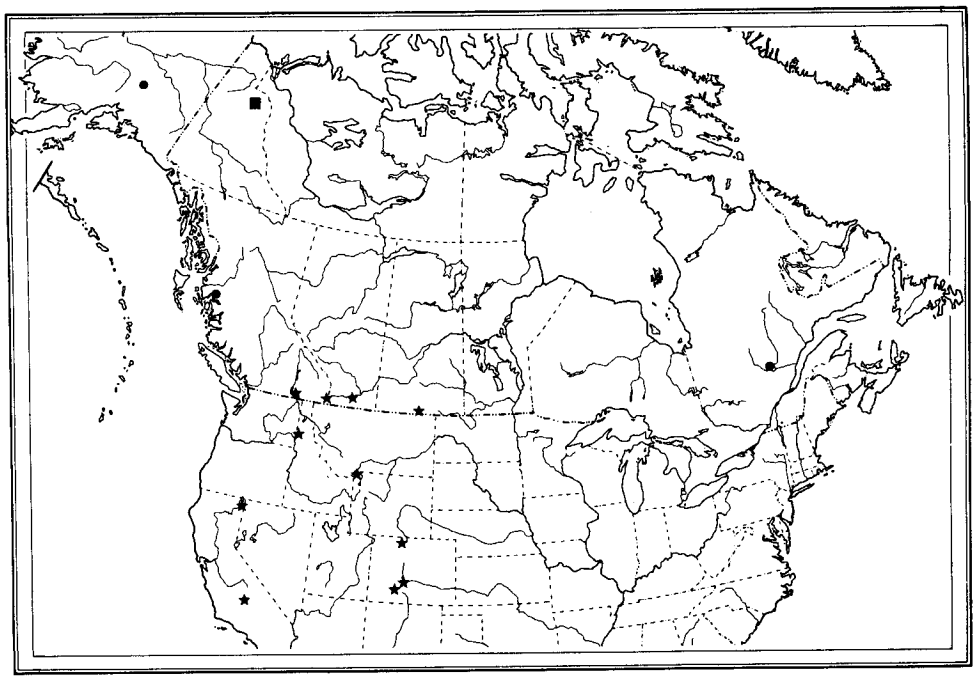
Platycheirus thylax Hull, 1944, p. 78.

Length 5.6–6.8 mm.

Male. Very similar to that of *discimanus*, differing as follows: Lower facial margin a little less produced, not extending as far forward as tubercle; keel and grooves on upper part of face sometimes obscure or absent. Thoracic hairs mostly or entirely black. Fore tibia (Fig. 18*a*) yellowish above on entire length; mid tibia usually dull yellow on about basal quarter; first 2 tarsomeres of mid leg yellow-brown. Mid tibia (Fig. 18*j*) with anteroventral hairs on basal third very sparse, not longer than tibial diameter. First tarsomere of mid leg (Fig. 18*j*) slightly compressed, scarcely deeper than wide, 2nd tarsomere very slightly compressed; ventral setulae yellow-brown to dark brown. Knob of halter brown. Pruinose spots of tergites variable in size, sometimes with dull orange-brown background.

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: Aylmer, Que. Holotype male in C.N.C.; examined by me.



MAP 39. Distribution of *Platycheirus urakawensis* (Matsumura) (●), of *P. willistoni* (Goot) (★), and of *P. woodi* sp.nov. (■).

Distribution. Canada, south to Idaho, Pennsylvania, and Massachusetts (Map 36). B.C., VII; Ont., Que., IV, V.

Specimens Examined. Canada, 50 ♂♂; U.S.A., 4 ♂♂.

Biology. Specimens were collected in Nova Scotia in damp open sphagnum fen at 300 m.

Platycheirus urakawensis (Matsumura)

(Fig. 32; Map 39)

Melanostoma urakawense Matsumura, 1919, p. 132.
Platychirus urakawense: Minamikawa and Fukuhara, 1964, p. 225.

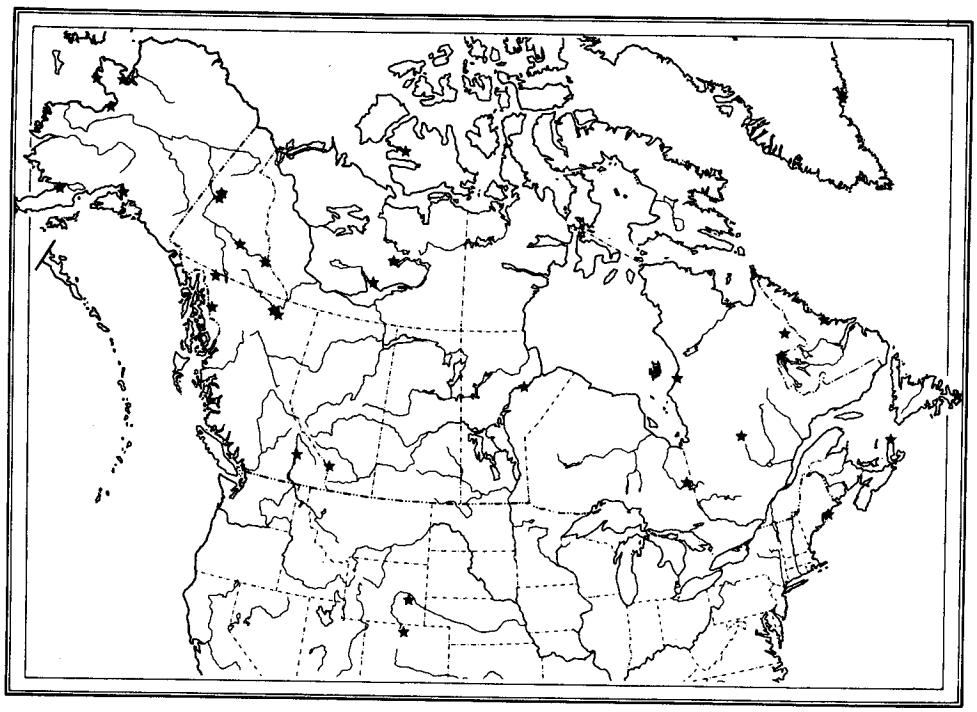
Length 7.8–9.7 mm.

Male. Very similar to that of *albimanus*, differing as follows: Wing with cell bm entirely trichose. Lower katepisternal hairs all black, stiff. Fore tibia more strongly broadened on apical third and with posteroapical angle broadly rounded; 1st tarsomere strongly broadened posteriorly on about basal two-thirds, sharply angulate at this point and then with straight margin to apex (Fig. 32). Mid tibia at mid length with rather strong black posterior bristle about 3.5 times as long as tibial diameter. First 4 tarsomeres of mid leg yellow, 5th brown above. Spots of tergite 2 indistinct, silver pruinose, metallic anteriorly; spots of tergites 3 and 4 distinct, densely silver pruinose.

Female. Unknown in North America, probably not distinguishable from those of related species.

Type Specimens. Type locality: Hokkaido, Japan. Syntypes presumably in Entomological Institute, Hokkaido Univ., Sapporo.

Distribution. Alaska, British Columbia, Quebec (Map 39); eastern Siberia; Nepal; Japan. B.C., VI.



MAP 40. Distribution of *Platycheirus varipes* Curran.

Specimens Examined. Alaska, 1 ♂; Canada, 4 ♂♂; Siberia, 1 ♂; Nepal, 1 ♂; Japan, 4 ♂♂.

Discussion. The known distribution of this species is unusual. I had suspected that the nearctic specimens might be of *urakawensis* when I compared them with the excellent figures of Ôhara (1980). Comparison with several males from Japan showed differences so slight that I do not feel justified in treating the two populations as distinct species. Ôhara records this as the commonest species of the genus in Japan.

Biology. Minamikawa and Fukuhara recorded the species as a predator of *Myzus persicae*.

Platycheirus varipes Curran
(Figs. 53, 77; Map 40)

Platycheirus varipes Curran, 1923*a*, p. 65.

Length 7.1–8.7 mm.

Male. Similar to that of *hispidipes*, differing as follows: Face a little less protruding below, with less dense pruinosity. Antenna black. Pleura with mixed black and white hairs, those of lower part of katepisternum fine. Wing with very small bare areas near base. Knob of halter blackish-brown. Legs mostly dark brown to black, the following yellow or whitish-yellow: fore femur except posterodorsal and sometimes also anteroventral streak, fore tibia except posterior streak, fore tarsus except sometimes the last tarsomere, apex of mid femur, narrow base and apex of mid tibia, 1st tarsomere of mid leg. Fore leg (Fig. 53): femur posteriorly without subbasal tuft of white hairs, with long strong nearly uniform black hairs; tibia slightly and uniformly broadened on basal two-thirds, then more strongly broadened posteriorly, with short broad posteroapical angle, with moderately long posterior hairs on most of its length; 1st tarsomere strongly broadened posteriorly on basal

two-fifths, then slightly narrowed or parallel-sided to slightly arcuate apex, as long as wide; 2nd tarsomere 1.6 times as wide as long, slightly narrowed toward apex; 3rd tarsomere subrectangular, a little wider than long. Mid femur with an anteroventral row of short stiff pale or black setae on apical three-fifths and usually with a slender curved black preapical hair; posteriorly and posteroventrally with long fine mostly black hairs. Mid tibia nearly cylindrical, ventrally with dense fine erect wavy black or pale hairs which anteroventrally near base are about 2.5 times as long as tibial diameter. Hind femur with shorter hairs. Abdomen (Fig. 77) with large grey or bluish-grey submetallic spots which are densely silver-grey pruinose and extend at most obscurely to lateral margins.

Female. Not distinguishable from those of several similar species.

Type Specimen. Type locality: Fort Kent, ME. Holotype male in M.C.Z.; examined by me.

Distribution. Alaska, western and northern Canada, Greenland, south to Colorado and Maine (Map 40). B.C., VI, VII.

Specimens Examined. Alaska, 9 ♂♂; Canada, 68 ♂♂; Greenland, 6 ♂♂; U.S.A., 6 ♂♂.

Biology. Specimens were taken in Nova Scotia in *Betula–Abies* woodland.

Platycheirus willistoni (Goot), comb.nov.

(Map 39)

Cheilosia rufipes Williston, 1882, p. 306 (preocc. Macquart, 1829).
Melanostoma willistoni Goot, 1964, p. 219 (nom.nov. for *rufipes* Williston).
Melanostoma willistoni Sedman, 1965, p. 575 (nom.nov. for *rufipes* Williston).

Length 7.7–10.5 mm.

Male. Very similar to that of *concinnus*, differing as follows: Thorax usually with slight coppery tinge, especially laterally, its hairs sometimes yellowish, rather long, the longest scutellar hairs subequal in length to arista. Wing with microtrichia very variable, cell c bare on up to basal fifth, cell bm bare on from basal third to basal seven-eighths. Legs with femora and tibiae orange; tarsi orange with 3rd and 4th tarsomeres, and on hind leg also 5th tarsomere, usually brown above. Abdomen with markings bronzy rather than bluish. Terminalia as in *concinnus* (Fig. 92*b–d*).

Female. Very similar to that of *concinnus* but legs coloured as in male of *willistoni*.

Type Specimens. Type locality: Washington Territory, U.S.A. Four female syntypes in U.S.N.M. examined. One labelled "W.T.", "Acc. 19,702 Williston", "Type No. 820 U.S.N.M.", and "Melanostoma(?) rufipes Will." is here designated as lectotype; it has been so labelled. The other three specimens each have the first two of these labels; they have been labelled as paralectotypes. One has the abdomen red and cells c and bm bare on about the basal third; it may be of a different species from the other three specimens but does not have the katepisternum pruinose posteriorly so is apparently not of *russatus* sp.nov.

Distribution. Southwestern Canada, south to California and Colorado (Map 39). B.C., VI, VIII.

Specimens Examined. Canada, 10 ♂♂, 4 ♀♀; U.S.A., 5 ♂♂, 6 ♀♀.

Discussion. This species may be based on specimens of *concinnus* with entirely orange femora and tibiae.

Platycheirus woodi sp.nov.
(Fig. 62; Map 39)

Length 7.9 mm.

Male. Similar to that of *pullatus*, differing as follows: Facial tubercle more abrupt and protruding, subacute; upper part of face with very weak median keel. Thorax subshining, distinctly less pruinose; thoracic hairs mostly white (as in Alberta specimen of *pullatus*). Knob of halter pale yellow-brown. Fore tibia posteriorly and posteroventrally on entire length with dense fine mostly pale yellow hairs about twice as long as tibial diameter; 1st tarsomere of fore leg with similar but slightly shorter hairs (Fig. 62). Mid femur anteroventrally without black setae, with long fine white hairs on basal half. Mid tibia anteroventrally with only very short hairs, posteriorly on middle third with suberect fine pale hairs a little longer than tibial diameter. First tarsomere of mid leg without distinct long anteroventral setae. Abdomen strongly shining, the pruinose lateral spots of tergites 2–4 very obscure.

Female. Unknown.

Type Specimen. Holotype male: YUKON TERRITORY, Richardson Mts., 66°08′N, 135°44′W, 2600 ft., 6.VIII.1982 (D.M. Wood). C.N.C. Type No. 18789.

Distribution. Yukon Territory (Map 39); VIII.

Specimens Examined. Canada, 1 ♂.

Biology. The holotype was taken along the top of a very dry, nearly flat, barren dolomite ridge (D.M. Wood, personal communication).

Platycheirus yukonensis sp.nov.
(Map 35)

Length 7.9–8.9 mm.

Male. Very similar to that of *carinatus*, differing as indicated in couplet 49 of the key to species.

Female. Not distinguishable from those of several similar species.

Type Specimens. Holotype male: YUKON TERRITORY, mi. 51 Dempster Hwy., 17–21.VI.1973 (G. & D.M. Wood). C.N.C. Type No. 20224. Paratypes: 82 males (32 from same locality as holotype, from 17–27.VI.1973) from localities indicated on Map 35. In C.N.C.; Calif. Acad. Sci.; Cornell Univ.; Oreg. St. Univ.; U.S.N.M.; Univ. Minn.; B.M.(N.H.); Inst. Biol., Novosibirsk; Zool. Inst., Leningrad; Zool. Inst., Lund; coll. F.D. Fee, State College; coll. P. Laska, Olomouc; coll. J. Lucas, Rotterdam; coll. V.A. Mutin, Vladivostok; coll. T. Nielsen, Sandnes.

Distribution. Alaska, northwestern and western Canada (Map 35) (high boreal and alpine). Y.T., VI, VII.

Specimens Examined. Alaska, 1 ♂; Canada, 82 ♂♂.

UNRECOGNIZED SPECIES AND SPECIES INCORRECTLY RECORDED AS NEARCTIC

ambigua Fallén, 1817, p. 47 (*Scaeva*). Recorded from British Columbia and Oregon by Wirth *et al.* (1965) as *Melanostoma ambiguum*. I have seen no nearctic specimens of *Platycheirus ambiguus*; it is probable that the records were based on specimens of the very similar *P. coerulescens*. *Platycheirus ambiguus* differs from *coerulescens* in having distinct posterior bristles on only the apical half of the fore femur and in having the wing membrane more extensively trichose, with cell c bare only posteriorly and cell cu*p* entirely trichose. It differs from *P. lundbecki* in having the fore femur entirely yellow-orange and the strong ventral setae of the fore femur and the anteroventral setae of the mid femur entirely pale.

chilosia Curran, 1922, p. 275 (*Melanostoma*). The holotype female in the C.N.C. is of a species of *Platycheirus*; it may be of *protrusus* sp.nov. but the thoracic hairs are entirely white instead of mostly black. Type locality: Banff, Alta.

femineus Curran, 1931, p. 251 (*Platycheirus*). The holotype female in the C.N.C. is of a species of *Platycheirus*, possibly of *albimanus* (Fabricius) or of *varipes* (Curran). The presence of a long white hair just beyond the base of the posterior surface of the fore femur suggests that the specimen may be sexually aberrant. Type locality: Tabatière, Que.

monticola Jones, 1917, p. 220 (*Melanostoma*). Six female syntypes in the U.S.N.M. are of one or possibly more than one species of *Platycheirus*, either of *nearcticus* sp.nov. or of species similar to it. Type localities: Cherokee Park, Estes Park, and Carbondale, CO.

naso Walker, 1849, p. 587 (*Syrphus*). The type female in the B.M.(N.H.) is of a species of *Platycheirus*, either of *nearcticus* sp.nov. or of a species similar to it. Type locality: St. Martin's Falls, Albany River [Ont.].

pacilus Walker, 1852, p. 240 (*Syrphus*). The type female in the B.M.(N.H.) is a specimen of *Platycheirus*, either of *nearcticus* sp.nov. or of a similar species. Type locality: North America.

peltatus Meigen, 1822, p. 334 (*Syrphus*). North American records of *Platycheirus peltatus* (Meigen) were undoubtedly based primarily on specimens of *nearcticus* sp.nov. (q.v.) although I have seen specimens of several other species identified as *peltatus* in various collections.

tarsalis Schummel, 1837, p. 84 (*Syrphus*). Recorded from Alaska, British Columbia, and Colorado by Wirth *et al.* (1965). I have seen no nearctic specimens of *tarsalis*. Under this name in the U.S.N.M. were one male of *parmatus* Rondani from British Columbia and two males of *holarcticus* nom.nov. from Colorado. These specimens are almost certainly the basis of two of the records given by Wirth *et al.*

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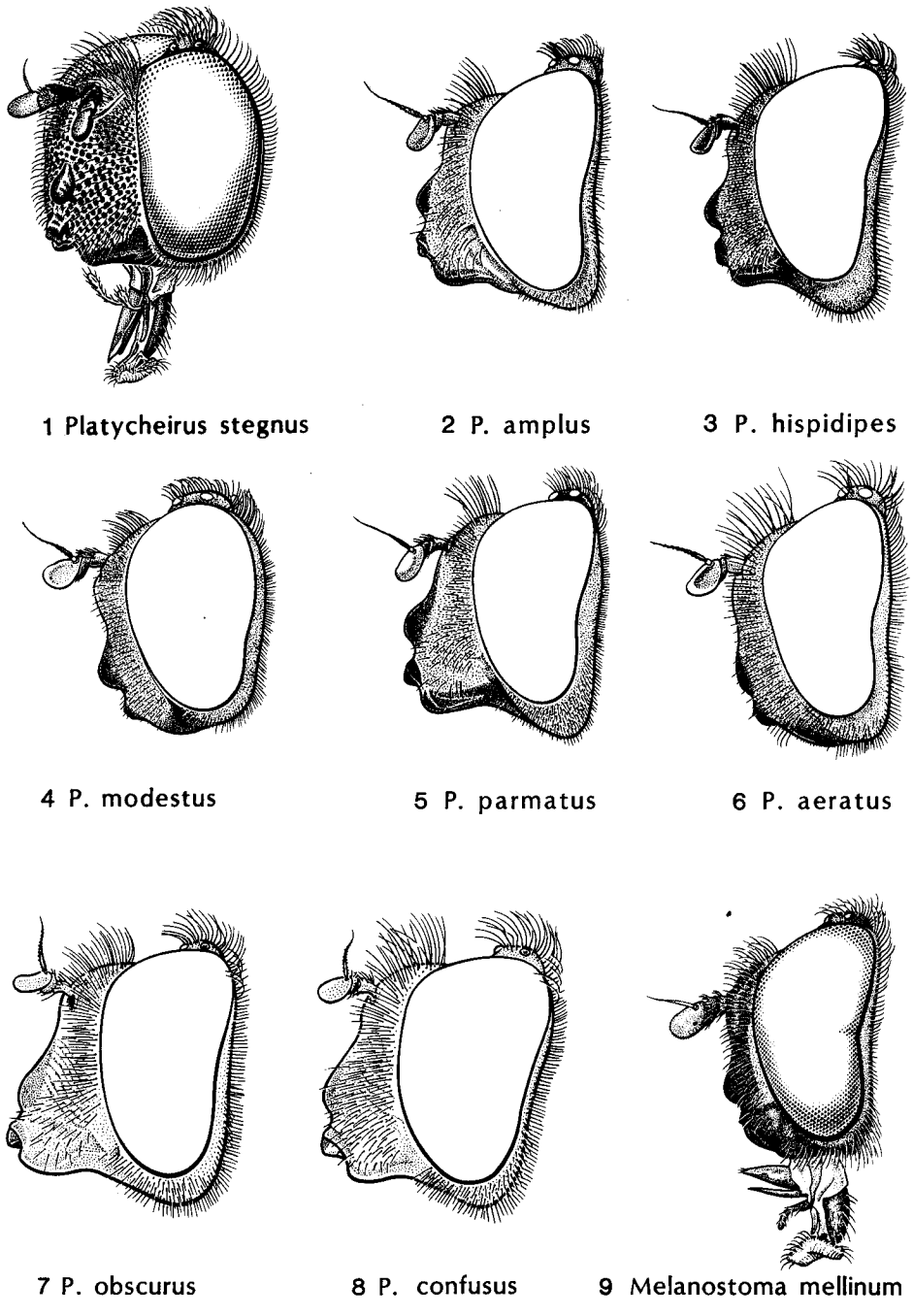
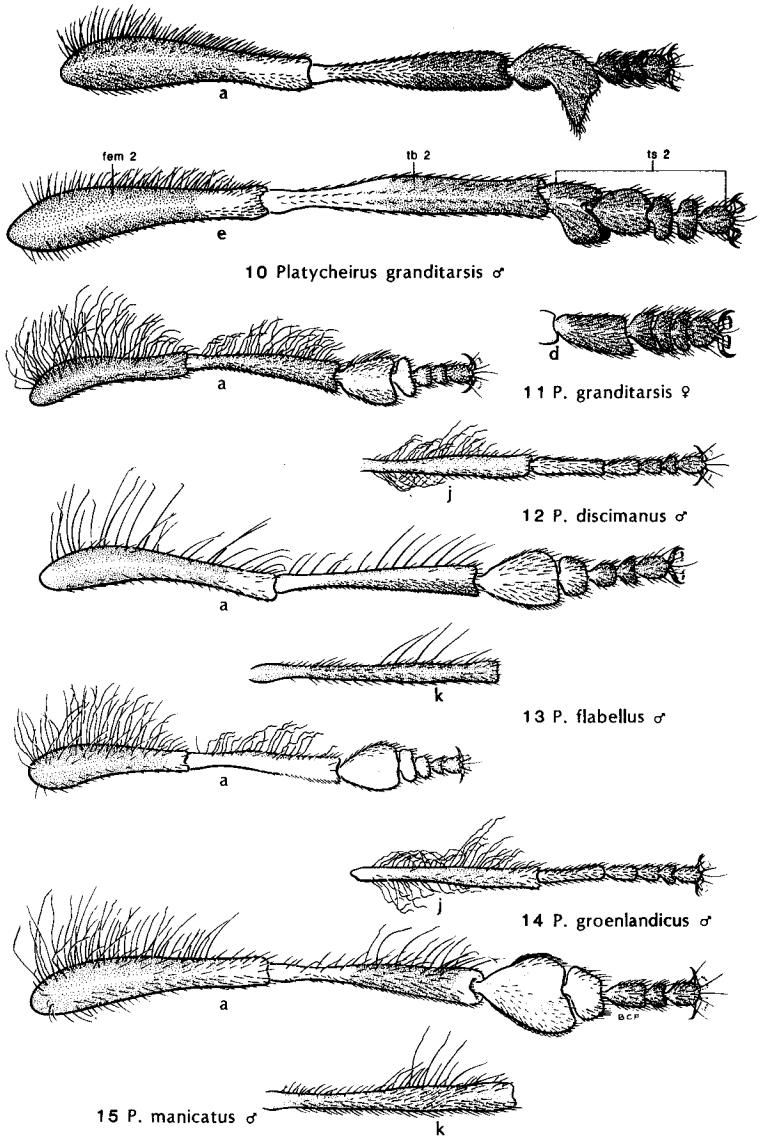
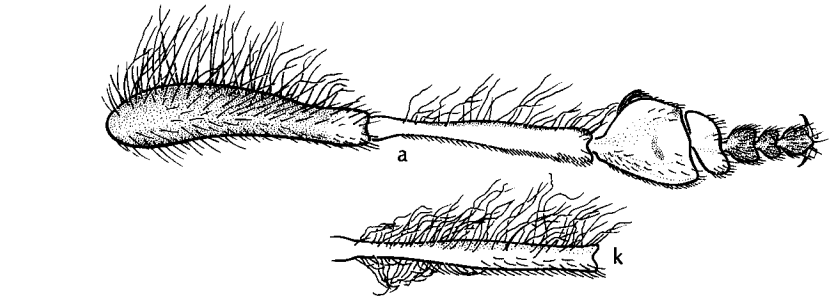


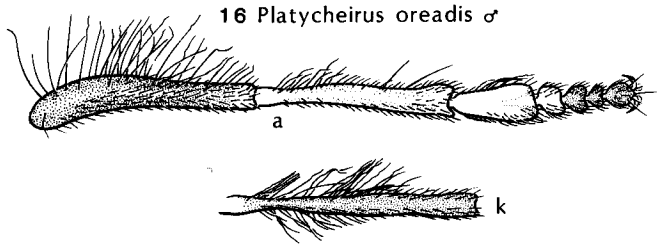
FIGS. 1–9. Heads: (1) *Platycheirus stegnus* (Say); (2) *P. amplus* Curran; (3) *P. hispidipes* sp.nov.; (4) *P. modestus* Ide; (5) *P. parmatus* Rondani; (6) *P. aeratus* Coquillett; (7) *P. confusus* (Curran); (8) *P. obscurus* (Say); (9) *Melanostoma mellinum* (Linnaeus).



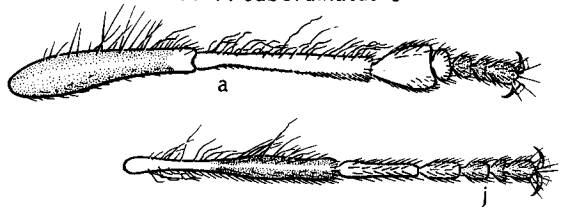
FIGS. 10–15. Legs: (10) *Platycheirus granditarsis* (Forster) ♂; (11) *P. granditarsis* ♀; (12) *P. discimanus* Loew; (13) *P. flabellus* Hull; (14) *P. groenlandicus* Curran; (15) *P. manicatus* (Meigen). *a*, femur, tibia, and tarsus of left fore leg, dorsal; *b*, tibia and tarsus of left fore leg, dorsal; *c*, tibia of left fore leg, dorsal; *d*, tarsus of left fore leg, dorsal; *e*, femur, tibia, and tarsus of left mid leg, dorsal; *f*, femur, tibia, and 1st tarsomere of left mid leg, dorsal; *g*, femur, tibia, and tarsus of left mid leg, anterior; *h*, coxa, trochanter, and femur of left mid leg, anterior; *i*, femur of left mid leg, anterior; *j*, tibia and tarsus of left mid leg, dorsal; *k*, tibia of left mid leg, dorsal; *l*, tibia of left mid leg, anterior; *m*, tibia and tarsus of left hind leg, dorsal; *n*, tibia of left hind leg, dorsal; *p*, first tarsomere of left hind leg, anterior. Abbreviations: fem, femur; tb, tibia; ts, tarsus.



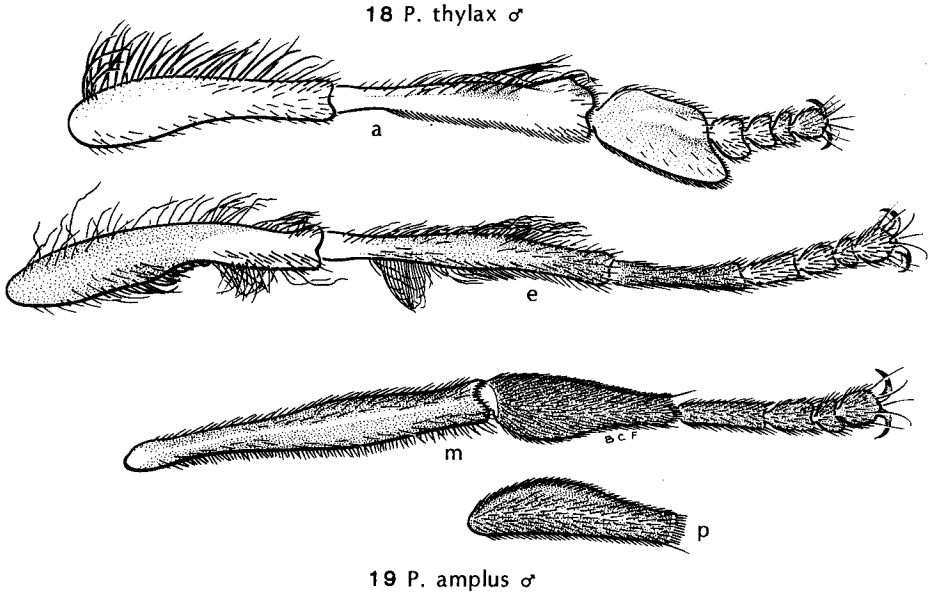
16 Platycheirus oreadis ♂



17 P. subordinatus ♂

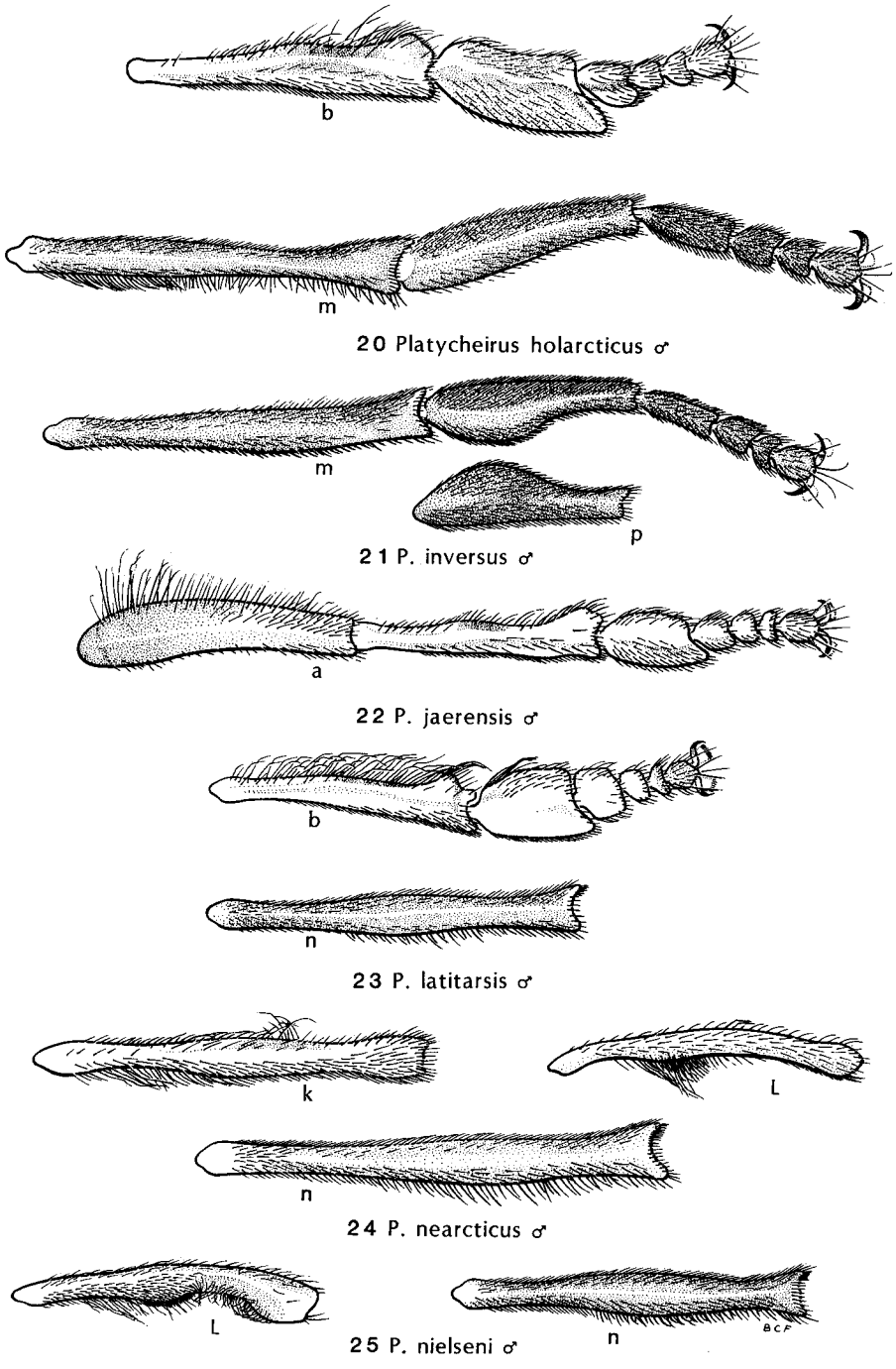


18 P. thylax ♂

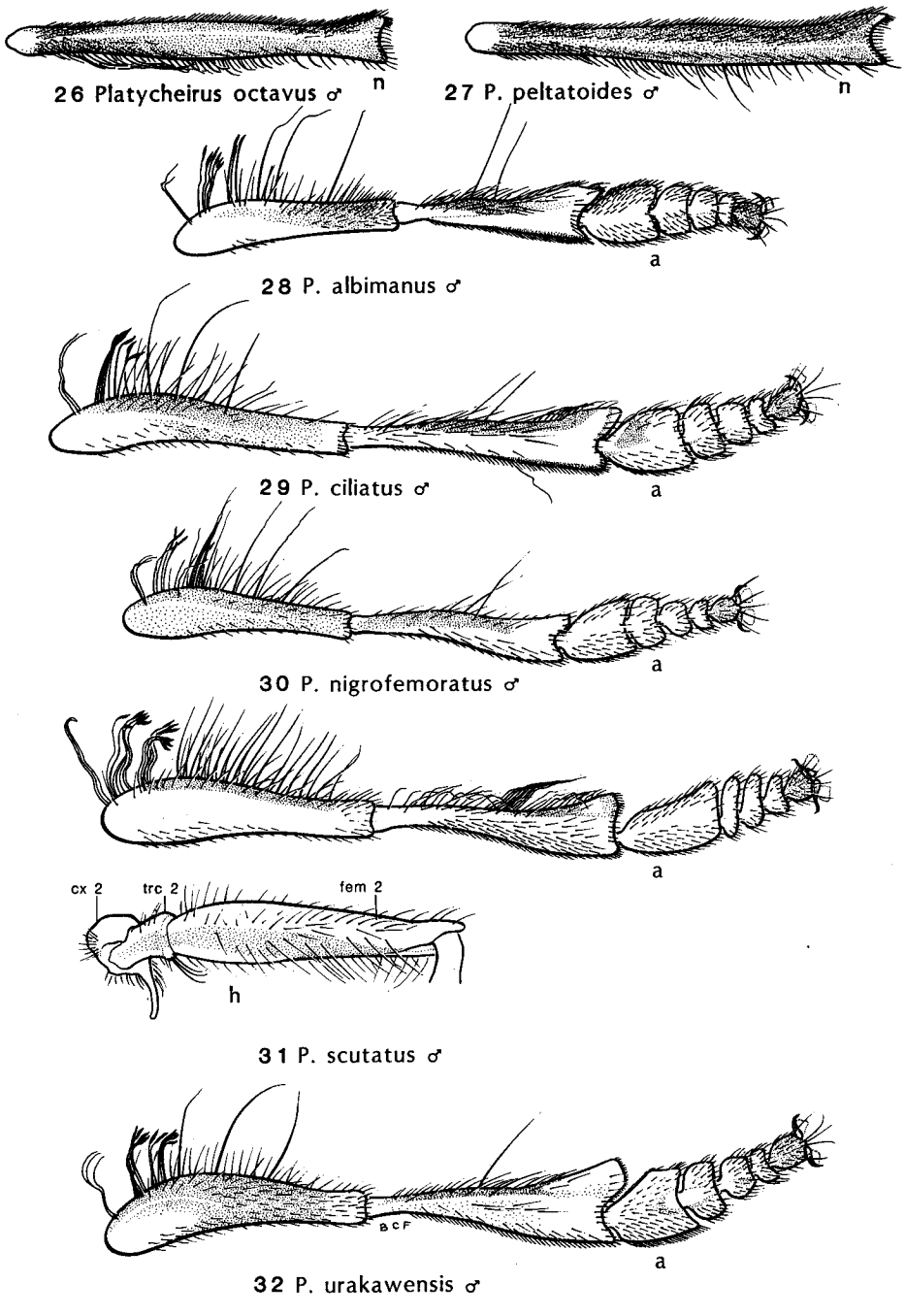


19 P. amplus ♂

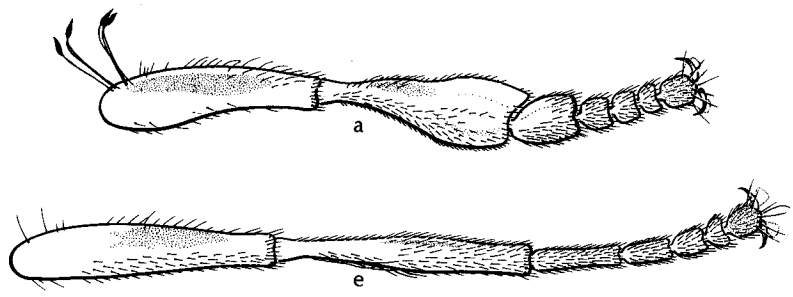
FIGS. 16–19. Legs: (16) *Platycheirus oreadis* sp.nov.; (17) *P. subordinatus* Becker; (18) *P. thylax* Hull; (19) *P. amplus* Curran. Subscripts as for Figures 10–15.



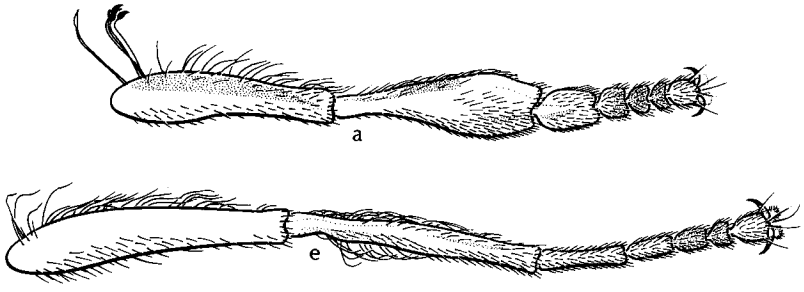
FIGS. 20–25. Legs: (20) *Platycheirus holarcticus* nom.nov.; (21) *P. inversus* Ide; (22) *P. jaerensis* Nielsen; (23) *P. latitarsis* sp.nov.; (24) *P. nearcticus* sp.nov.; (25) *P. nielseni* sp.nov. Subscripts as for Figures 10–15.



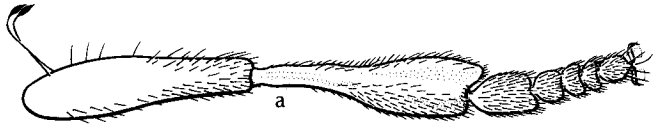
FIGS. 26–32. Legs: (26) *P. octavus* sp.nov.; (27) *P. peltatoides* Curran; (28) *P. albimanus* (Fabricius); (29) *P. ciliatus* Bigot; (30) *P. nigrofemoratus* Kanervo; (31) *P. scutatus* (Meigen); (32) *P. urakawensis* (Matsumura). Subscripts as for Figures 10–15. Abbreviations: cx, coxa; fem, femur; tr, trochanter.



33 Platycheirus nodosus ♂

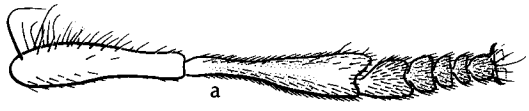


34 P. pilatus ♂

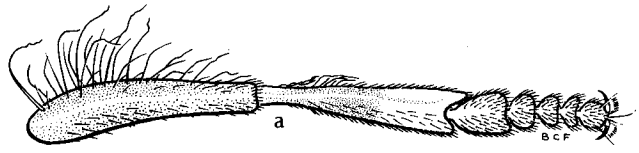


35 P. thompsoni ♂

36 P. aeratus ♂

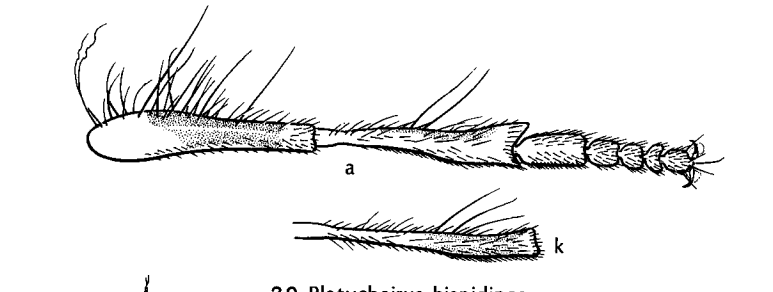


37 P. angustatus ♂

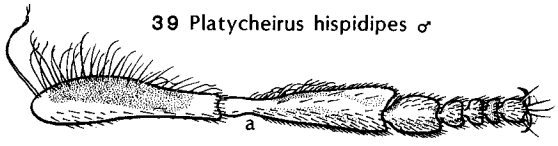


38 P. clypeatus ♂

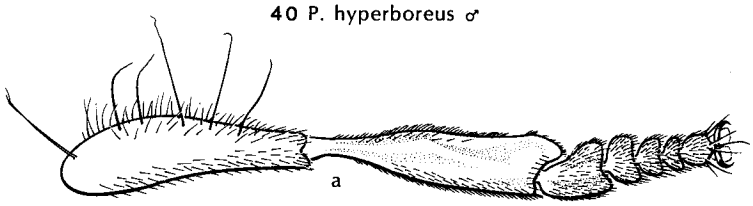
FIGS. 33–38. Legs: (33) *Platycheirus nodosus* Curran; (34) *P. pilatus* sp.nov.; (35) *P. thompsoni* sp.nov.; (36) *P. aeratus* Coquillett; (37) *P. angustatus* (Zetterstedt); (38) *P. clypeatus* (Meigen). Subscripts as for Figures 10–15.

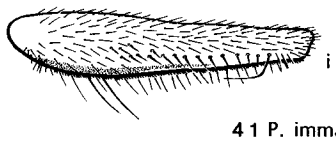


39 Platycheirus hispidipes ♂

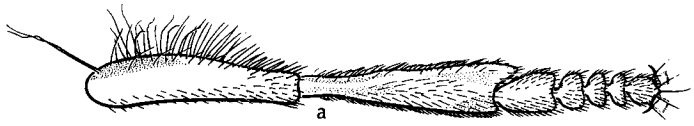


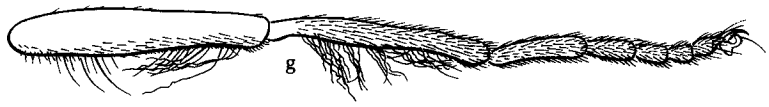
40 P. hyperboreus ♂



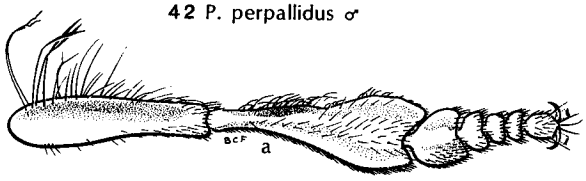


41 P. immarginatus ♂



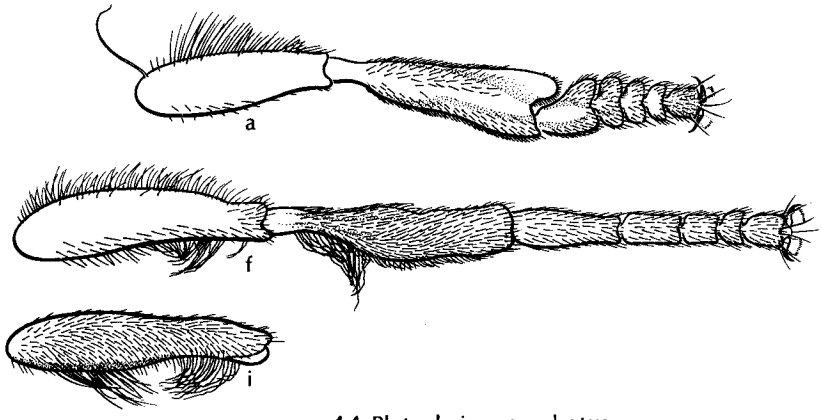


42 P. perpallidus ♂

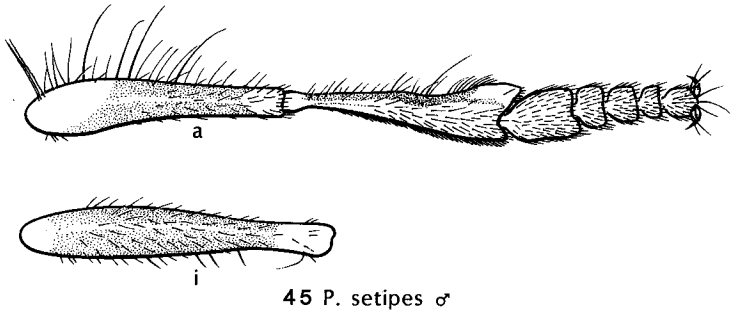


43 P. podagratus ♂

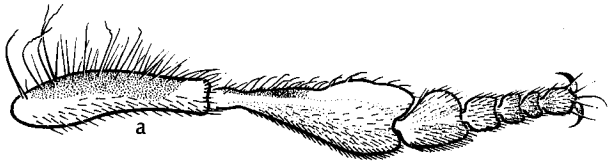
FIGS. 39–43. Legs: (39) *Platycheirus hispidipes* sp.nov.; (40) *P. hyperboreus* (Staeger); (41) *P. immarginatus* (Zetterstedt); (42) *P. perpallidus* Verrall; (43) *P. podagratus* (Zetterstedt). Subscripts as for Figures 10–15.



44 Platycheirus quadratus ♂

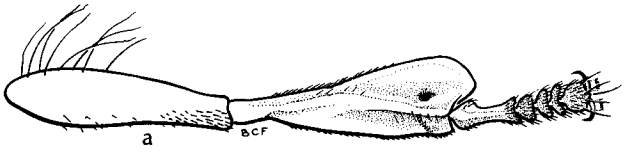


45 P. setipes ♂



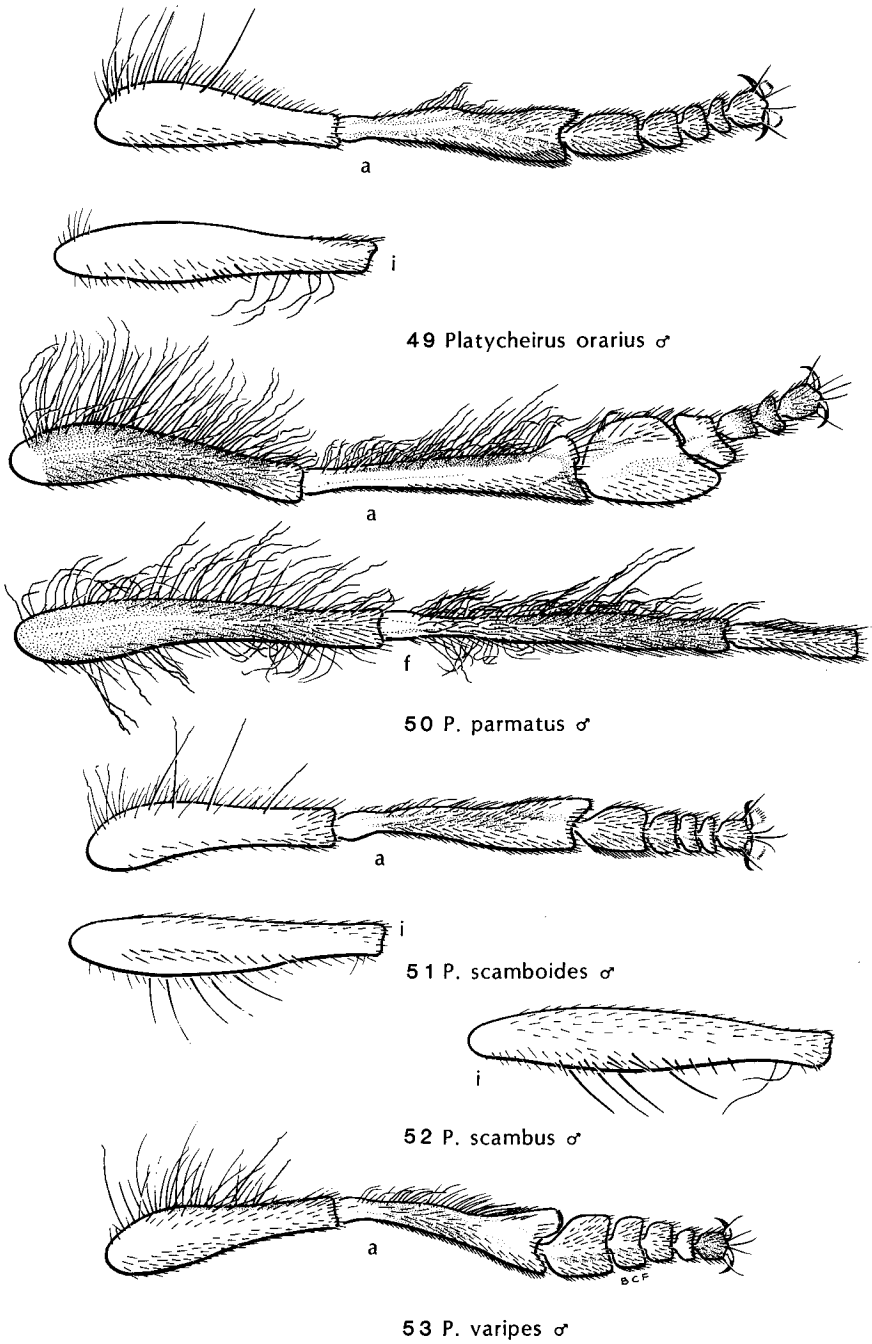
46 P. tenebrosus ♂

47 P. modestus ♂

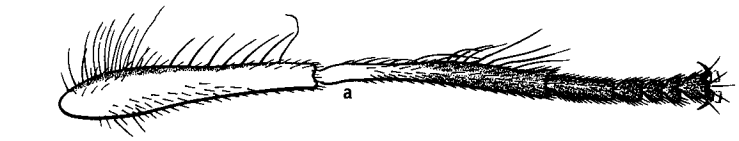


48 P. normae ♂

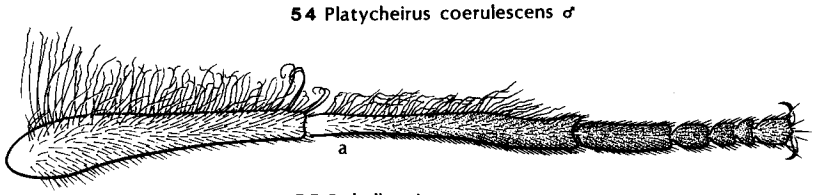
FIGS. 44–48. Legs: (44) *Platycheirus quadratus* (Say); (45) *P. setipes* sp.nov.; (46) *P. tenebrosus* Coquillett; (47) *P. modestus* Ide; (48) *P. normae* Fluke. Subscripts as for Figures 10–15.



FIGS. 49–53. Legs: (49) *Platycheirus orarius* sp.nov.; (50) *P. parmatus* Rondani; (51) *P. scamboides* Curran; (52) *P. scambus* (Staeger); (53) *P. varipes* Curran. Subscripts as for Figures 10–15.



54 Platycheirus coerulescens ♂

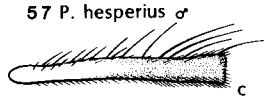


55 P. kelloggi ♂

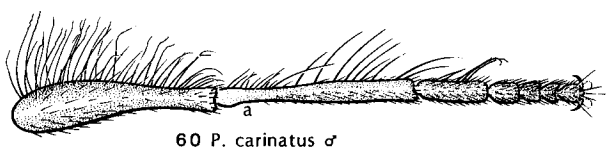
56 P. confusus ♂

57 P. hesperius ♂

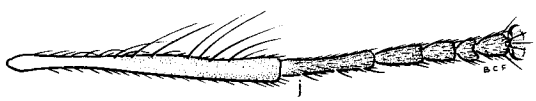
58 P. squamulae ♂



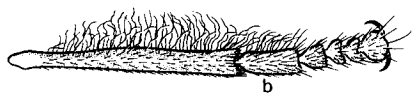
59 P. stegnoides ♂



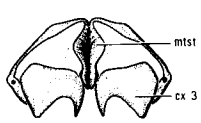
60 P. carinatus ♂



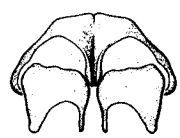
61 P. setitarsis ♂



62 P. woodi ♂

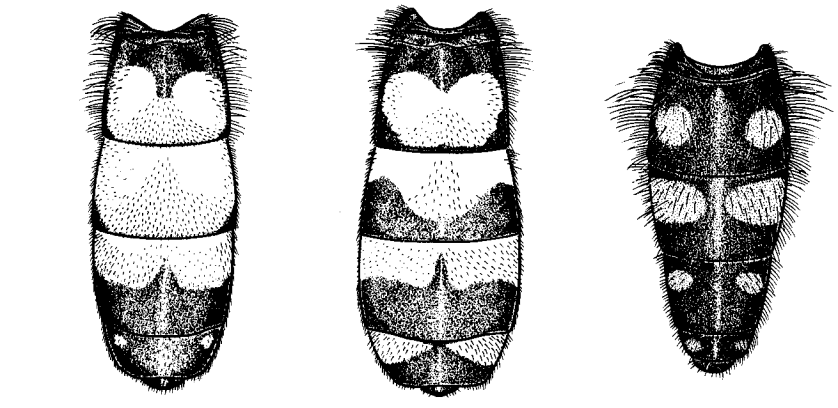


63 Melanostoma mellinum ♂

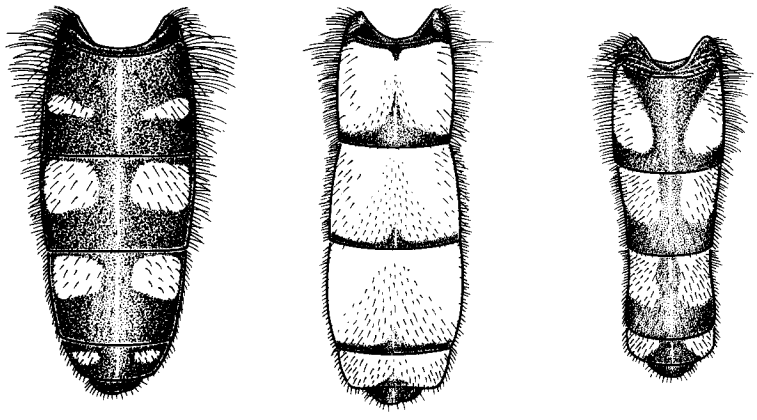


64 Platycheirus quadratus ♂

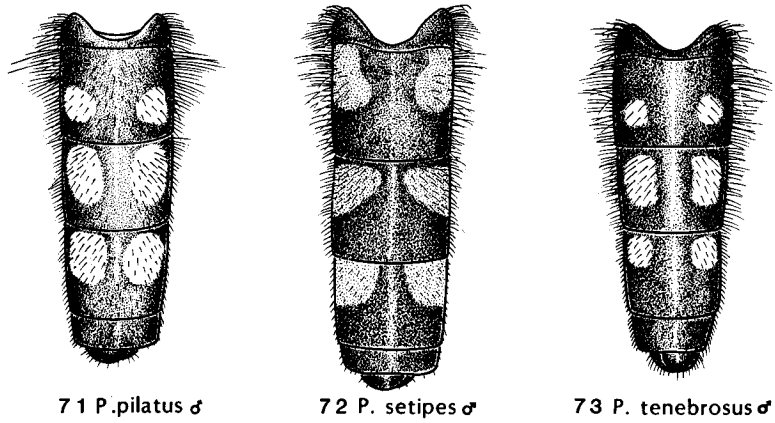
FIGS. 54–64. Legs; metasterna and hind coxa: (54) *Platycheirus coerulescens* (Williston); (55) *P. kelloggi* (Snow); (56) *P. confusus* (Curran); (57) *P. hesperius* nom.nov.; (58) *P. squamulae* (Curran); (59) *P. stegnoides* sp.nov.; (60) *P. carinatus* (Curran); (61) *P. setitarsis* sp.nov.; (62) *P. woodi* sp.nov.; metasternum and hind coxae, ventral, of (63) *Melanostoma mellinum* (Linnaeus); (64) *Platycheirus quadratus* (Say). Subscripts as for Figures 10–15. Abbreviations: cx, coxa; mtst, metasternum.



65 Platycheirus granditarsis ♀ 66 P. granditarsis ♀ 67 P. oreadis ♂

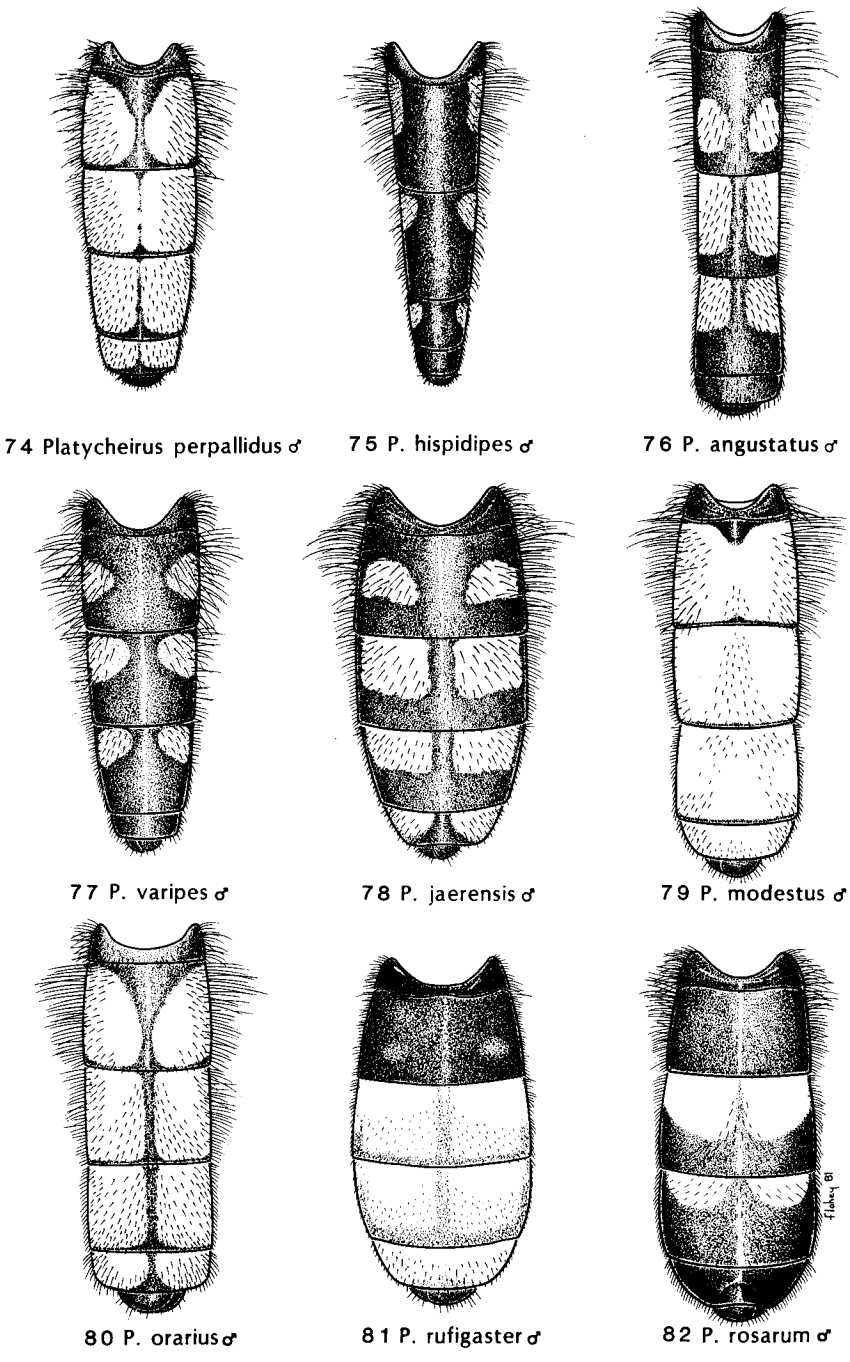


68 P. holarcticus ♂ 69 P. normae ♂ 70 P. thompsoni ♂

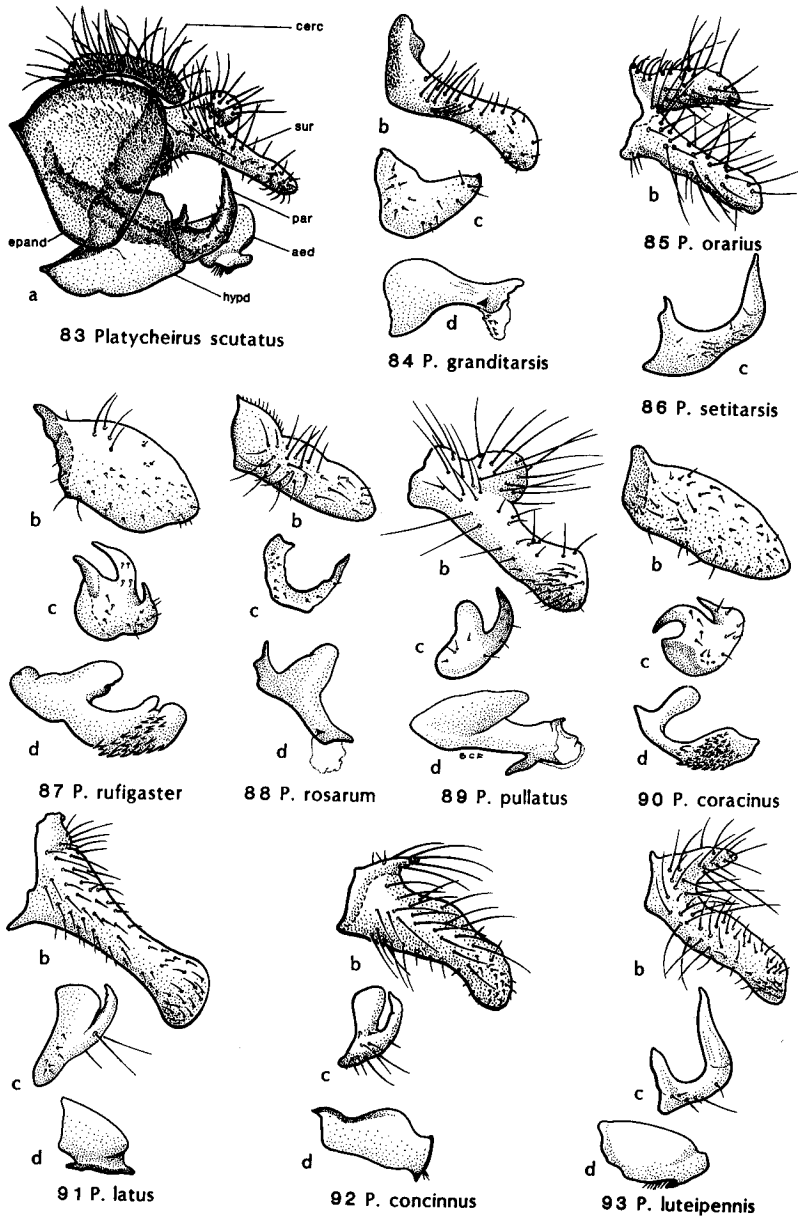


71 P.pilatus ♂ 72 P. setipes ♂ 73 P. tenebrosus ♂

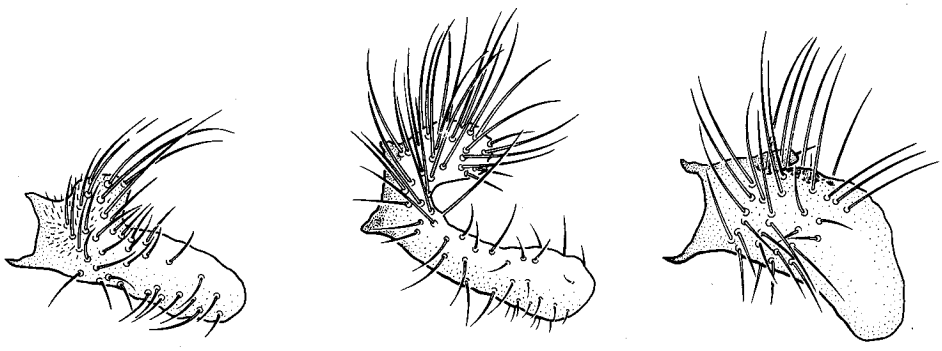
FIGS. 65–73. Abdomens: (65, 66) *Platycheirus granditarsis* (Forster); (67) *P. oreadis* sp.nov.; (68) *P. holarcticus* nom.nov.; (69) *P. normae* Fluke; (70) *P. thompsoni* sp.nov.; (71) *P. pilatus* sp.nov.; (72) *P. setipes* sp.nov.; (73) *P. tenebrosus* Coquillett.



FIGS. 74–82. Abdomens: (74) *Platycheirus perpallidus* Verrall; (75) *P. hispidipes* sp.nov.; (76) *P. angustatus* (Zetterstedt); (77) *P. varipes* Curran; (78) *P. jaerensis* Nielsen; (79) *P. modestus* Ide; (80) *P. orarius* sp.nov.; (81) *P. rufigaster* sp.nov.; (82) *P. rosarum* (Fabricius).



FIGS. 83–93. Male terminalia: (83) *Platycheirus scutatus* (Meigen); (84) *P. granditarsis* (Forster); (85) *P. orarius* sp.nov.; (86) *P. setitarsis* sp.nov.; (87) *P. rufigaster* sp.nov.; (88) *P. rosarum* (Fabricius); (89) *P. pullatus* sp.nov.; (90) *P. coracinus* sp.nov.; (91) *P. latus* (Curran); (92) *P. concinnus* (Snow); (93) *P. luteipennis* (Curran). Subscripts: *a*, terminalia, left lateral; *b*, left surstylus, dorsolateral; *c*, left paramere, lateral; *d*, aedeagus, left lateral. Abbreviations: aed, aedeagus; cerc, cercus; epand, epandrium; hypd, hypandrium; pm, paramere; sur, surstylus.



94 Platycheirus confusus 95 P. obscurus 96 P. sabulicola

FIGS. 94–96. Surstyli left lateral: (94) *Platycheirus confusus* (Curran); (95) *P. obscurus* (Say); (96) *P. sabulicola* sp.nov.